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OFFICE OF STRATEGIC SERVICES

Research and Analysis Branch

R & A No. 754

SURVEY OF SWEDEN

Volume I - Text

25 June 1942

Second Edition: 3 November 1943

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Prefatory Note
to second edition
of Survey on Sweden

The survey on Sweden was prepared during May and June of 1942. For some time no further copies of it have been available. Therefore, it is deemed worth while to issue a reprint to meet the additional calls for copies. Were time available, the original text might be modified in various passages and, on some points, brought up to date. This would be true particularly of the discussion on Sweden's foreign trade and the transit traffic. Most of the discussion, however, remains valid.

SWEDEN

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Section III.

POPULATION AND SOCIAL CONDITIONS

15. General

a. Historical.

(1) Prehistoric.

Primitive man appeared in Sweden as the ice sheet was retreating northward after the last glacial stage. Habitation, however, was very largely confined to the southern part of the country, including the low lake-filled region, until well into the historical period. From this region came later the ancestors of some of these Germanic peoples (notably the Ostrogoths and the Visigoths) who helped to overrun the later Roman Empire. Life was organized on a tribal basis - one catches some flavor of it from the English literary epic, Beowulf. In the seventh and eighth centuries, two confederations of tribes contended for mastery. To the south and southwest were the Goths and their adherents - we are reminded of this in modern place names such as Västergotland, Göteborg (Gothenburg) and Gotland (island). Off to the northeast were the Svear with their center in Uppland province at Old Uppsala. It was the aggregation of the Svear which finally predominated and brought about consolidation of the country - hence the term Svea rike or Sverige, i.e., Sweden. King Gustavus V, it may be remembered, is still formally "King of Swedon, and of the Goths and the Wends."

(2) Viking Period.

The Swedes were active in the Viking period (in 800-1060), especially in the expeditions across the Baltic and along the waters of later Russia. Viking (or Varangian) adventurers made their way to the Black and the Caspian Seas; the route down the Dnieper River to Constantinople became known as the Varangian route, i.e., the route of the Northmen. A state established among the Slav peoples, at Kiev and farther north, became known as Russia, which, one serious school of opinion holds, means the land of the Rus. The Rus

or the Ros would then be people from Roden or Roslagen, one of the coastal districts of east central Sweden.

In medieval Swedish history, the earliest figure of outstanding constructive qualities was Birger Jarl (Earl Birger), who established a dynasty lasting from 1250 to 1360. His rule was marked by constitutional reforms and commercial development. He founded Stockholm, which rapidly became the country's most important commercial center.

In the later medieval period some German influence made its way, notably in connection with the Hanseatic League. To restrict the activities of the League in the North, there came into being, late in the fourteenth century, the Kalmar Union of the Scandinavian kingdoms. Within it, power tended to gravitate toward Denmark and its dynasty.

(3) Swedish Independence.

Strong national tendencies against both German and Danish encroachment soon manifested themselves in Sweden. In the 1430's there was a peasant rising in Dalarne (Dalecarlia) against the rule of Danes and Danish agents. The leader Engelbrekt was killed shortly, but before he passed from the scene, he called a meeting of Swedish estates (1435) which proved the beginning of the Swedish Riksdag. In the 1520's a more decisive revolt flared up under Gustavus Vasa. It resulted in Sweden's withdrawal from the Kalmar Union, and the establishment on the throne of Sweden, of the House of Vasa. Gustavus also sought to restrict the activities of German merchants in his realm. His espousal of the Lutheran Reformation served to loosen the ties with the old church. By the end of the sixteenth century Lutheranism was definitely established in Sweden.

(4) Power Politics in the Baltic.

In the seventeenth century Sweden rose to be a great power - the leading power in the Baltic. Across the Gulf of Bothnia, Finland had been conquered gradually in the twelfth and thirteenth centuries, partly as a crusading endeavor. When the power

of the Teutonic Knights crumbled along the East Baltic, it seemed natural for Sweden, partly to forestall Poland and Russia, to extend her control over Esthonia and shores farther south.

In the western Baltic, Denmark was in full control of The Sound, since she owned all of present day south Sweden; she had always possessed it, ever since the first traces of national consolidation. In the 1620's came the serious reverses of Protestantism in the Thirty Years' War, especially the ignominious failure of Denmark to advance the Protestant cause. In the person of her greatest king, Gustavus II Adolphus (1611-1632) Sweden next stepped forward, partly to save Protestantism on the continent, partly to guard and advance her own dynastic and territorial interests. Almost over night the fortunes of war seemed to turn. Though Gustavus fell at Lützen in 1632, his very shrewd chancellor, Axel Oxenstierna carried on, and a remarkable crop of Swedish generals, trained in the school of Gustavus, helped to keep bright the lustre of Swedish arms.

Before the Thirty Years' War was over the balance in the Baltic shifted in favor of Sweden. Jämtland and Herjedalen, provinces traditionally part of the Norwegian monarchy, were transferred in 1645 to Sweden. In 1658 all of south Swedon - Skåne, Blekinge, Halland and Bohuslän - were added to Sweden, thus rounding out geographically the Swedish monarchy.

The military escapades of the boy King Charles XII (1697-1718), an undoubted military genius, brought to an end Sweden's day as a great Baltic power. Charles engaged a succession of enemies, but came to grief on the plains of the Ukraine at Poltava (1709). Launching a new invasion of Denmark-Norway, he died at the siege of Fredriksten (1718). Most of Sweden's trans-Baltic possessions were lost in a series of treaties (1718-21), chiefly to Prussia and to Russia.

(5) Internal Politics

The social history of Sweden (like that of Norway) had been marked throughout by the absence of serfdom in any

fundamental form. Feudalism here never became as firmly rooted as on the continent, and the bonde in Sweden and Norway always retained a freer status than that we associate with the peasant elsewhere in the west. Nonetheless, the Swedish nobility could be challenging enough on occasion. But the monarchy took the upper hand definitely on two occasions, once in the days of Charles XI (1660-97), and again through the successful coup of Gustavus III in 1772.

(6) The Bernadotte Period.

After Gustavus came two weak rulers. Wavering policies in Napoleonic days brought war with Russia, and the loss of Finland (1809). A bloodless revolution that year led to deposition of Gustavus IV Adolphus, and the adoption of a constitution, the liberal constitution of 1809, under which the country still lives. In order to curry favor with Napoleon, the victorious elements chose one of his marshals, Bernadotte, as crown prince. On his accession to the throne in 1818 as Karl XIV Johan, the Bernadotte dynasty was established and it continues to rule to the present.

Bernadotte deserted Napoleon in time to be numbered among his victors. As compensation for the loss of Finland, the Allies permitted the transfer of Norway from the Danish King to Sweden. This brought the Scandinavian peninsula under a single dynasty. But this union was not firmly established. The Norwegians fought a short war against the transfer of their country, and then negotiated with Bernadotte a peace which allowed them a high degree of autonomy, and the retention of their very liberal constitution. But the two peoples were driven apart by growing nationalism and divergent economic interests, and in 1905 came the definitive break. That it was accomplished without bloodshed (some Swedish military circles would have preferred a "promenade" to Oslo, then Christiania) was a gain of inestimable value. When a world war broke out only nine years later, it was possible for Sweden and Norway (with Denmark) to maintain a common policy of neutrality, instead of being used by opposite sides in the great contest.

PROVISIONAL EDITION

FREE

HISTORIC AND MODERN POLITICAL DIVISIONS OF SWEDEN

0 50 100
MILES

8 12 16 20 24 28

68 64 60 56

NORRBOTTEN

Lappland

VÄSTERBOTTEN

Ångerman-land

Jämtland

JÄMTLAND

Kopparberg

Dalarna

Gästrikland

GÄVLEBORG

UPPSALA

VÄRMLAND

Värmland

Västmanland

Uppland

VÄSTERMANLAND

STOCKHOLMSTAD AND LÄN

ÖREBRO

Närike

Södermanland

SÖDERMANLAND

Bohuslän

Dal

ÄLVSBORG

GÖTEBORG AND BOHUS

SKARABORG

Västergötland

ÖSTERGÖTLAND

JÖNKÖPING

KALMAR

GOTLAND

Småland

HALLAND

KRONOBERG

Öland

KALMAR

KRISTIANSTAD

BLEKINGE

Skåne

MALMÖHUS

DENMARK

NORWAY

SWEDEN

FINLAND

GULF OF BOTHNIA

BALTIC SEA

Principal historic boundaries

Boundaries of modern Län which coincide with old provincial lines

Boundaries of modern Län only

Boundaries of old provinces only

Historic names are represented in lower case letters

MAP NO. 572, JULY 6, 1942

COMPILED AND DRAWN IN THE GEOGRAPHY DIVISION, O.S.S.

(7) The Middle Way.

Once the great war was over, Swedish energies were well represented in the endeavor to organize an international system based on order and justice. Sweden was one of the staunch supporters of the League principles. As the world depression deepened in the thirties, anxious reformers, especially in the Anglo-Saxon countries, looked admiringly toward the Scandinavian countries. Sweden especially, seemed a perfect example of "the middle way."

To thoughtful Swedes, this adulation was not wholly a source of satisfaction. The Axis world naturally frowned upon a liberalism and a democracy successfully practised so close to its totalitarian doors. More decisively than Norway or Denmark, Sweden set about to improve her military establishment. She adopted a large military program in 1936. This perhaps, was the most important single reason why she avoided direct involvement in the crushing events which in April 1940, overtook her closest neighbors.

b. Contemporary Social Scene.

The contemporary social scene in Sweden is marked by the high degree of solidarity of its population. No social minorities of any appreciable size are present. The language in almost universal use is Swedish, with an interest in English as a secondary language, on the increase. The Lutheran religion is subscribed to by a very large percentage of the people. Illiteracy is almost unknown. A virile press, though it represents various shades of opinions, is almost unanimous in supporting the country's democratic institutions.

A second quality which strongly marks the Swedish social scene is its stability. Religion, education and homogeneity of population all tend to have a stabilizing influence. So also does a long experience in self government. A relatively high standard of living has been attained, and there has been developed

a remarkably successful procedure for handling industrial disputes. There is abroad a respect for police authority, and widespread concern for the maintenance of public order. The Swedish state has taken steps to provide its citizens with an intelligent information service, to serve as something of a guide among the confusing and contradictory claims of the great belligerents.

16. Population

a. Distribution.

The population is relatively sparse, averaging only about 40.15 persons per square mile. The Malmö, Göteborg and Stockholm areas have the heaviest populations. The interior provinces bordering on Norway and those in the extreme north, are sparsely settled. The ratio of density, at the two extremes of departments, (apart from Stockholm) ran as follows at the opening of 1941:

Malmöhus, 112; Göteborg, 98; Blekinge, 50; Kristianstad, 40; Västerbotten, 4; Jämtland, 2.9; and Norrbotten, 2.2.

b. Movement.

In the nineteenth century the heavy emigration movement retarded somewhat the rate of population increase; nevertheless an increase was maintained, and in the 1930's it ranged from 16,000 to 31,000 a year. The last century saw also a large shift from rural to urban residence, though this change did not proceed as far as might be assumed, partly because not so little Swedish industry came to be located away from urban centers. By 1940, 37.37% of Sweden's population lived in cities. Stockholm, Göteborg and Malmö accounted for over 925,000 of the inhabitants. A list of towns with a population over 10,000 each, is included in the Appendix.

c. Recent Figures.

A preliminary estimate of the total population of the country, for 1942, places the figure at 6,406,474. The official figure at the end of 1940 was 6,370,536 of which number 3,158,425 were men, and 3,212,113 were women. This is a ratio of 1017 women to 1000 men. In 1938 there were 1,267,291 men between the ages of 20 and 45. Allowing for an average of a 25,000 increase in population each year to 1942, the number of Swedish men in the military age group, 20 to 45, should now be about 1,287,000.

PROVISIONAL EDITION

FREE

POPULATION DENSITY OF SWEDEN

NUMBER OF PEOPLE PER SQUARE MILE

LESS THAN 1	
1	13
13	39
39	65
65	130
OVER	130

18° EAST OF 22° GREENWICH 24°

68°

64°

60°

56°

12°

16°

NORWAY

FINLAND

DENMARK

Luleå

Umeå

Östersund

Härnösand

Sundsvall

Söderhamn

Gävle

Falun

Uppsala

Västerås

Sundbyberg

Eskilstuna

STOCKHOLM

Karlstad

Kristinehamn

Karlskoga

Örebro

Södertälje

Lidingö

Katrineholm

Nyköping

Norrköping

Linköping

Uddevalla

Trollhättan

Skövde

Lidköping

Alingsås

Borås

GÖTEBORG

Jönköping

Nässjö

Västervik

Visby

Varberg

Halmstad

Växjö

Kalmar

Karlshamn

Karlskrona

Hälsingborg

Landskrona

Kristianstad

MALMÖ

Ystad

Trälleborg

POPULATION OF CITIES, 1940

•	10,000 - 20,000
o	20,000 - 50,000
⊙	50,000 - 100,000
◉	100,000 - 250,000
◎	250,000 - 500,000
■	OVER 500,000

0 50 100 150

MILES

0 100 200

KILOMETERS

MAP NO 571, JUNE 19, 1942

COMPILED AND DRAWN IN THE GEOGRAPHY DIVISION, OSS

17. Ethnic and Social Groups

a. Physical Types.

The population of Sweden is strikingly homogeneous, apart from a Mongolian element to be spoken of below. The long-skulled Nordic (dolichocephalic) type predominates, though Montelius' estimate of 37% is too high. The broad-skulled (brachycephalic) strain of darker pigmentation is also in evidence, being most common in the north, the extreme south, and scattered along the east coast.

b. Immigrants.

Sweden, like some parts of Norway, may claim the purest Teutonic blood. No serious racial admixture has taken place in historic times. A thin infiltration of German settlers, in the coastal towns and the capital, has been discernible at various times since the days of the Hanseatic League (14th and 15th centuries). In like manner, individual families and scattered groups of Scots and Walloons have settled in Sweden, and sometimes have become important in the country's industrial or intellectual life. One thinks of such family names as Ramsay, Hamilton, and Montgomery, or of De Geer or De Laval.

Over a long period of time, a sizable population of Finns settled within Sweden's boundaries, the census of 1930 listing 33,929 of that background. So too, a sprinkling of Jews have established themselves in Sweden since the eighteenth century. The latest reliable figures placed the number at 6,474 (about .1% of the population). This figure has been increased in recent years as refugees from central Europe sought asylum.

c. The Lapps.

The most distinctive ethnic group in Sweden is the Lapp population in the northern part of the country. In 1930 it numbered 6,481. Very nearly all of these lived in the province of Norrbotten. The Swedish population of this province was 162,827, so that even in this province the Lapps (and the Finns who numbered 33,929) were a decided minority.

(1) Race and Religion.

The Lapps belong entirely to the Mongolian race. They are broad-skulled (brachycephalic) and short of stature. They have prominent cheek bones, broad faces, and a brownish complexion. The hair is usually dark and the men very generally wear beards. Originally they may have drifted over the Arctic wastes into Finland and Norway and thence into northern Sweden. Their language is of the Finno-Ugrian division of the Mongolian tongues. They are generally religious; in recent generations they have subscribed to a rather puritanical form of Christianity, due largely to the influence of Laestadius, a pietist Swedish pastor who labored among them in the middle of the nineteenth century.

(2) Economic Pursuits.

In economic pursuits the bulk of the Lapps are agricultural. Fishing and settled agriculture occupy many, but about half of them - the figure in 1930 was 2,824--are still nomadic and make their living from their herds of reindeer. In that year 2,481 were listed as engaged in industry and handicraft work while only 78 were in trade. The Lapps are scattered about in a very important strategical area--we shall have occasion below to discuss the famous Lapland iron mines. There is no evidence to suggest that they are dissatisfied with Swedish rule; they would hardly be promising material for any fifth column activity.

d. Occupational Distribution.

The Swedish social order has been thoroughly permeated with the ideals and the practice of democracy. The distribution of occupations makes for a well balanced economy. In 1930 36% of the population was engaged in agriculture, fishing and forestry. Industry occupied 30.6%; commerce, 11%; transport, 5.1%; the merchant marine, 1.5%; mining 1.2%; the armed forces, .9% (this figure obviously must be increased during the present military situation); the liberal professions, 5.6%; and domestic service, 7.2%.

e. Millionaires and Nobles

Sweden is a rich country, and millionaires do occasionally appear. One may think of the Krougers, for example, or of Axel Wenner-Gren. Vestiges of an older privileged society still linger, particularly in social matters. An elaborate ceremonial persists, and an order of nobility is retained. The Swedish nobility lost its political privilege in the general reform of 1866 which gave birth to the modern Riksdag. But some corporate sense is kept alive by triennial meetings of noble representatives - really the old House of Nobility in attenuated form - who consider political and economic questions of common interest. Only the King can issue patents of nobility and in recent decades but few have been issued - that given to Sven Hedin in 1902 may be the latest.

Though small in numbers, the noble families exercise the usual subtle influence in the realm of manners; moreover they are well represented in positions of command in the armed forces.

f. Aliens

The total number of aliens in the country, in February of 1939, was given as 23,722. These were grouped as follows:

Germans	5,973
Finns	4,360
Norwegians	3,510
Danes	2,560
United States citizens	2,207
English	1,040
Russians	872
Esthonians	560
Italians	340
Swiss	307
Czechs	337
French	178

Other Europeans 352

Other non-Europeans 126

Another estimate indicated that 36% of the Germans in Sweden were of Jewish background, and of these in turn, only 233 were counted political refugees. Among those counted as Russians, there were 620 Jews. The total number of political refugees was 992.

18. Language

The language of the country is Swedish, a member of the Scandinavian or North-Germanic group. Dialects flourish but the differences between them are not too pronounced. In the South the dialects naturally show traces of Danish influence, while in the west and upland provinces the approach to Norwegian speech is discernible. In setting the norm for the speech of the realm, the provinces of Gothic background

provinces of the Svear, i.e., those which took the final lead in the political consolidation of the country. The language of culture was affected by some German and Dutch influence in the sixteenth and seventeenth centuries, and then in the eighteenth century by French. But the nineteenth century was marked by a reaction in favor of the native tongue.

The knowledge of foreign languages, especially German and English, is widespread, partly because the secondary schools generally give instruction in them. In recent years English has been gaining rapidly at the expense of German. At the University of Stockholm in 1941, a three-weeks course in English attracted 170 students (an introductory lecture on "Anglo-Saxon Democracy" drew an attendance of 300). When only 15 students enrolled for a corresponding course in German, the latter was abandoned. In 1942, a Stockholm publishing firm ventured on the artitious progran of publishing a series of British and American best-sellers in English - good indication of the Swedish interest in Anglo-Saxon ways and life.

This interest in the English language springs from commercial as well as cultural and political considerations. The widespread popularity of Hollywood films has made American speech familiar (though often in most fragmentary fashion) to circles that otherwise would have no knowledge of or interest in it. The rural population is naturally least responsive to the foreign language interest. In commercial correspondence with Swedish firms, English may be freely employed. In general one may move about a good deal in Sweden without being in serious need of an interpreter.

(504)

19. Characteristics of the People

a. Custom and tradition.

The influence of custom and tradition is most marked on festive occasions, and at functions in which the royal family plays some part. It may be an opening of the Riksdag, or the royal patronage of some benefit, or some functions pertaining to the court itself-perhaps a royal christening, a wedding at the court, or a state funeral. It is the nobility which best gives outward expression to this desire to observe outstanding events in a manner conforming to the best tradition. But the average Swede approves the homage that is paid to the heritage of the past. In turn he respects the authority of the present, in the form of the state and the officials with whom he has to deal.

b. Temperament.

It would, however, be a mistake to conclude that the Swede is old-fashioned. On the contrary, keeping up with the present has become almost a fetish with him. He must, in everyday life, be modern. His designers and architects have had something to do with the promotion of modernist styles in architecture and the decorative arts, both in the home and in the market place. To a marked degree the average Swede applies artistic values to many of the problems of everyday living. The art world, if not aware of this earlier, learned of it emphatically at the Exposition of Industrial Arts at Stockholm in 1930.

c. Intelligence.

The general level of intelligence is very high; illiteracy is almost non-existent. The arts are generously supported and the attention given to science and invention is widespread. The Swedish patent office has for some time granted over 2000 patents annually, and in recent years the figure has been closer to 3000. The modern Swede is to a high degree, mechanically minded, and has established a creditable tradition in the manu-

facture of precision instruments. Engineers of Swedish background have an enviable record of achievement in American as well as Swedish industry.

This mechanical aptitude owes something to the existence in Sweden of metals-especially copper and iron-and of water power, which early stimulated a mechanical concern with their utilization. The eighteenth century saw a measure of Swedish preeminence established, and the tradition continues undiminished. Some of the outstanding names and accomplishments are: a long series of improvements in the manufacture of iron and steel (Swedish steel is well-known); the screw propeller and the turret warship (J. Ericsson); steam turbines, and the invention of the cream separator (De Laval); automatic match-making machines, and safety matches (Lagerman); manufacture of wood-pulp by the sulphite process (Ekman); dynamite and smokeless powder (Nobel); improvements in commercial telephony (L. M. Ericsson); refrigeration principles as utilized by Elektrolux (exploited later by Axel Wenner-Gren.

d. Military qualities.

A respect for the military virtues has lingered in many quarters in Swedish society. After all, Sweden was, in the early modern period, a power of the first rank. Gustavus II Adolphus and Charles XII, were only the most illustrious of a succession of monarchs, who stamped upon the mind of Europe a sober consciousness of Swedish prowess in the military art. In the twentieth century the Swede is devoted to the ideals of peace but he does not forget the military exploits of his forbears. He does not care to imitate them, but they give him a sense of pride in his country, and they enhance his self respect. They supply concrete evidence that his stock is a virile stock, which now may expend its energies upon more constructive pursuits than those of war. But faced with a world at war, the Swede recoils

upon his illustrious military tradition, and finds in it the courage to enter upon a heavy program of preparedness. Moreover he now has the experiences of his closest neighbors, the Finns and the Norwegians, to serve as a warning to him, and-what may be equally important-to inspire him.

He knows too that his people need yield to none in the physical qualities demanded by service in modern war. The pursuit of ideals of physical fitness has become almost a cult among the Swedish people. The system of gymnastics founded by Per Henrik Ling, early in the nineteenth century, has become world-renowned; in 1930 representatives of more than a score of countries founded the "Federation internationale de gymnastique Ling," and in July of 1939, two months before the second World War broke, 7,300 gymnasts from 37 countries assembled at Stockholm for a "Lingiad" to honor their gymnastics master. At various international meets, Swedish gymnastic teams have elicited foreign admiration, the last notable occasion being the appearance of the Swedish Women's troop at the Berlin Olympics in 1936. The principles of the Ling system have long been integral parts of the Swedish military and educational training systems and have been adopted in various countries. An offshoot of Ling's work was the application of his principles to certain types of physical ailment. (The Swedish massage is, of course, universally known). The Swedes are ardently devoted to many sports; skiing, swimming, sailing, cycling, and others.

e. Political capacity.

To judge from the course of Sweden's history in recent decades, her people have developed political capacity of a high order. Important political transitions have been negotiated without serious violence, though there have always been conservative elements to offer objections. Thus, in 1866, the centuries' old Riksdag of Four Estates in orderly fashion

became the two-chambered body of the present. In 1905 the tie with Norway was severed without resort to arms. In 1909 a serious general industrial strike was liquidated, with lessons of caution learned on both sides. By successive steps, the suffrage was extended, first to men generally, and then to women.

Nowhere, perhaps, (unless it be in Denmark and perhaps in Norway) has the average citizen used his political power so sagaciously as in Swedon. The Swede learned the power of unified action (and the necessity for compromise through collective give and take) from his powerful labor unions. In equal measure, he perceived the importance of keeping individual initiative intact through the diverse undertakings of the flourishing cooperative movement. With these lessons to fortify him, he saw at the outset of the present war the need for unified political action, and a national coalition cabinet came into being in December, 1939. It still governs with the full confidence of the country, because all citizens, save those belonging to a few small minority groups, are devoted to the Swedish way of life, to its tradition and its democracy. They are convinced that only a close knit unity has any chance of meeting successfully a possible foreign attack. In short, Swedish political morale runs high.

f. Attitude toward the United States.

In Swedish opinion there is latent much good will toward the United States. Ties growing out of the immigration movement, the success found in America by Swedish technicians and inventors, admiration for our tremendous industrial power, a national sympathy with the democratic tradition of this country, an appreciation of the fulsome praise that was tendered Swedon in the thirties as the exemplar of "The Middle Way",-all this and more, give rise to a sympathetic attitude toward the United States. What is decisive in the present crisis is the hope pinned on America as the power that may strike low the long-threatening

menace of Nazi totalitarianism. Perhaps 90% of the Swedish people hope for victory by the United Nations.

Yet Britain and the United States compromised themselves grievously in the opinion of many Swedes when they associated themselves closely with Russia. Nazi Germany is feared by most Swedes, but even keener is the traditional fear of Russia. Many Swedes recently watched with dismay the rise to influence in British politics of Sir Stafford Cripps (since Sir Stafford is thought by many to have made extensive concessions to Russia for the post-war period). They likewise disliked the pressure put upon Finland by our State Department in the autumn of 1941, to get a cessation of fighting with Russia. Many Swedes (though perhaps not a majority) feel that the western powers do not understand the character of Finland's struggle.

The Swedish people generally are not apt to warm up to Anglo-Saxon reminders about common cultural ties and ideals. They may often believe in those ties, but their concern is with Swedish interests. The things for which they will fight are Swedish culture and Swedish history.

20. Living Conditions.

a. A High Standard of Living.

In the years between the two world wars, the standard of living in Sweden rose to a higher level than ever before. In part, this prosperity was due to the fact that Sweden (with a few other neutrals) escaped the destructive effects of the first world struggle. In part, it was due also to Sweden's development of valuable resources, notably timber and iron, and of highly skilled labor in certain lines. Then too there was a felicitous ordering of the country's social life, one which by the second half of the thirties, evoked much admiration in the Anglo-Saxon world. In large part, the attention devoted to Sweden was merited. For instance, real annual wages for male industrial workers showed the following advance:

Year	Index Figure (Using base figures of 100 for the years 1910-1913)
1881	54
1890	69
1900	83
1913	100
1920	100
1921	104
1925	108
1929	125
1930	128

Between 1880 and 1913 the total real consumption per person doubled, and from 1913 to 1930 it further increased by roughly 30%. Premiums paid to Swedish life insurance companies in 1887-90 averaged only $1,944,000 but in 1926-30 they averaged no less than $30,504,000, though some allowance must be made in the second case, for the wider acceptance of the idea of life insurance.

(1) Comparison with other countries.

There are no very satisfactory figures to use as a comparison with other countries. Sweden's standard of living is definitely higher than that of Southern, Eastern and Central Europe, perhaps higher than any in Northwestern Europe. But it is still decidedly below that in Canada, Australia and the United States. An

International Labor Office calculation in 1930 of workers' living costs in a number of countries yielded these figures, based on the index of 100 for British cities: Italy 43; Estonia 45; Austria 52; France 58; Poland 65; Czechoslovakia 74; Germany 77; The Netherlands 87; Ireland 97; Denmark 112; Sweden 113. The eight hour day became a law in Sweden in 1919, and in 1938 there was passed a law that secured a vacation every year for each workingman.

(2) Food

The Swedish food consumption is by and large adequate. Those who have had a chance to enjoy the delicacies of a Swedish smörgåsbord, may think that it is much more than adequate. But the Swedish diet, as that in all the northern countries, was until recently heavily dependent on cereals and on fish. There is now much concern with problems of diet, and a scientific effort is made to improve its deficiencies, especially in promoting the consumption of meats, vegetables and fruits. One manifestation of the growing interest in dietary problems and an endeavor to rectify deficiencies at an early age is the introduction of the free school lunches.

(3) Clothing.

In the matter of clothing, the traveler in Sweden is apt to be struck by the high standard of dress he sees amongst the urban population, especially when he compares it with what he sees in some other European cities. There is a universal concern to be abreast of the mode, whether the fashion be set by Paris, Berlin, London, or New York. This perhaps is true of summer dress particularly. Winter garb, naturally, must take more account of the local climate.

(4) Housing.

It is in the field of housing experiments that Sweden's name has come to be known to many. She has had a group of distinguished architects to place her well in the front of a modern architectural renaissance; Ragnar Östberg's Town Hall at Stockholm is

an example. But, more particularly, it is the housing development as it ties in with social policy that has distinguished the Swedish scene in recent years.

Swedish reformers normally talk less of their new housing projects than of the problems they have sought, and still seek, to remedy. One of these has been overcrowding in urban areas. Compared with other European countries, the density in urban areas has been high - about 120 persons to every 100 rooms. In rural areas the housing habits were, and in some localities still are, definitely substandard according to modern hygienic norms.

But if Swedish reformers still see mainly the shortcomings, outsiders have come to be impressed with what has been done. In rural areas the state has been most helpful. It has sponsored a home ownership program (Egna Hem) which by means of a state loan fund from 1905 to 1935 helped in the construction of roughly 80,000 detached houses, some with cultivable land, some without. About 1/10 of the rural population (ca. 400,000 persons) has thereby found a satisfactory housing arrangement. Through generous government support, some 32,000 dwellings have been considerably improved.

In the cities, the State has been relatively less generous, and the municipalities have themselves had to take the lead. The mass production of the small standardized cottage has been very successful; building materials and planning costs, and connections for water, gas and electricity, are supplied by the city, while the owner supplies the labor. The Cooperatives have been active in promoting the building of apartment houses. In Stockholm, 10% of the population now lives in cooperatively owned apartments. Some of the large industrial concerns have also sponsored housing projects for their staffs and workers, usually if the factories are located in rural areas. Notable examples are the projects of the Sandvik Steel Works at Sandviken and the Boliden Mines at Boliden. There are many others. Slums, as they have been known in Britain or the United States, do not exist in Sweden.

(5) Luxuries.

That the standard of living is relatively high is evident from the prevalence of conveniences. Radios, automobiles, and telephones are all very common in Sweden. The workman who does not have an automobile, may very likely own his own motor or sail boat. The arts are widely appreciated. Grand Opera has been supported in Stockholm since the 18th century.

(6) Effects of the war.

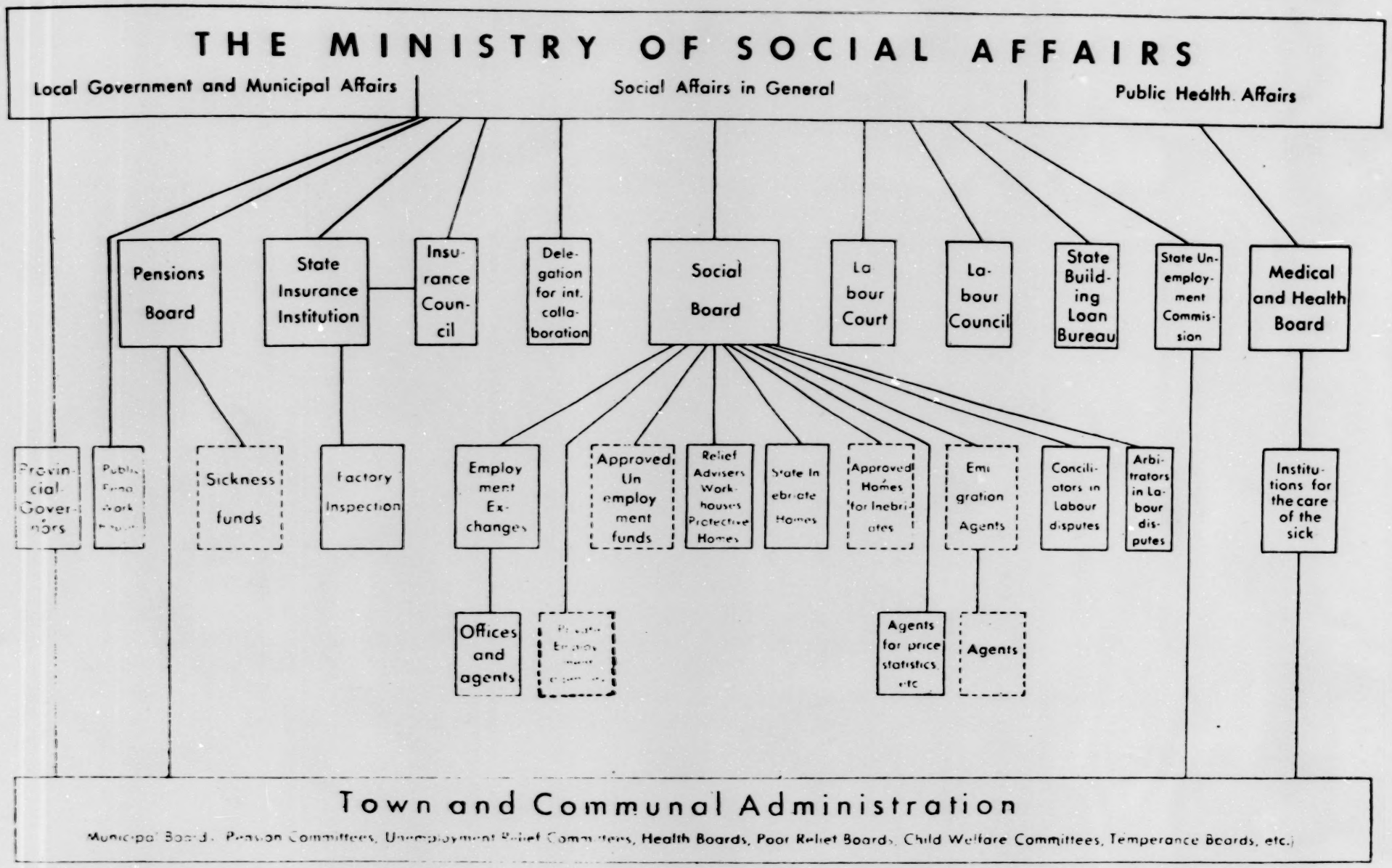
The inevitable effect of the present war, however, must be to wear down the Swedish standard of living. Rationing has been introduced on a variety of items - coffee, tea, cocoa, spices, sugar, syrup, cream, butter, lard, bread, grains, pork, meat, cheese, eggs, peas, beans, potato flour and potato flakes, clothing and textiles. The coffee allowance is very low and the meat ration inadequate. The shortage in rubber may become severe, while clothing and textiles are becoming a problem.

All accounts agree that the index figures of prices have risen sharply. On the basis of 100 for 1935, export prices by January 1942 were 172 and import prices a month later, 258. This difference between export and import indexes is a good indication that the average Swede can buy far less foreign products with the same income than he used to do. Taking 1939 as a base of 100, the cost of living index by May 1942 amounted to 143.1. But wages lag. A voluntary agreement, continuing the principles of tieing wages to the price index, allows a further 2.5% increase of wages for 700,000 workers. The total rise in wages above prewar figures is now 19.2%.

b. Social Security.

In the course of the 1930's, Sweden's social security legislation came to be looked upon as a model one. An elaborate network of social services was developed that operated to soften the harsher aspects of the competitive industrial system. Together with a virile labor movement, and an alert cooperative movement,

The Organization of the Social Administration.



the social services made up the core of that approach to social problems, which came to be known as "The Middle Way".

(1) Agencies.

Among the agencies active in the social security program are the Central Pension Board, the State (Accident) Insurance Institution, the Factory Inspection Service, the Unemployment Commission, the State Building Loan Bureau, the Health Boards, the Conciliation Board, the Arbitration Boards (for labor disputes), the Labor Council, which acts upon requests to have the eight hour law waived, and the Labor Court which interprets the contents of collective labor agreements. All the agencies mentioned are under the Ministry of Social Affairs. The Board of Liquor Control is under the Ministry of Finance, and the State Home Ownership Administration is under the Ministry of Agriculture. Local communal organs help to administer some of these services and carry on additional activities. Some general social work and poor relief is carried on also by private organizations.

(2) Administration.

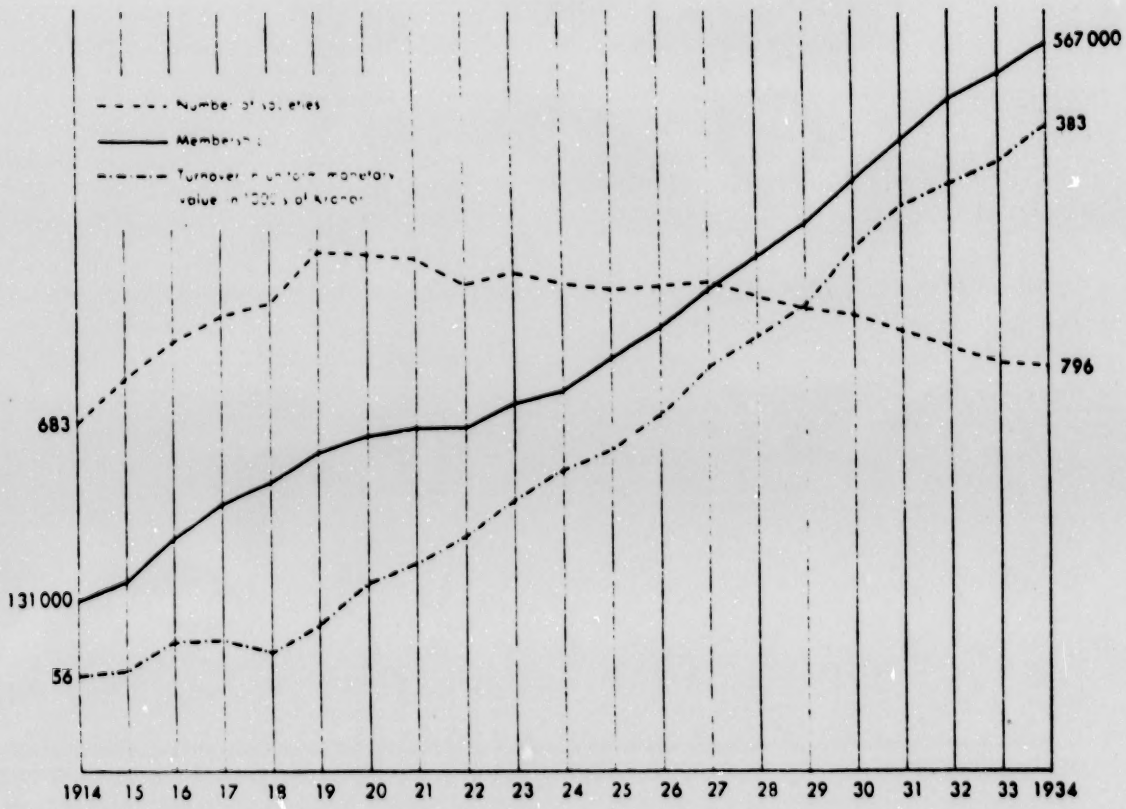
Under the Ministry of Social Affairs, a number of the social services are administered through the Social Board. Its activities concern the labor market, social welfare, including child and youth welfare, maternity aid, treatment of alcoholics, the investigation of social questions, including statistics on housing and cost of living. The Board also deals with immigration and emigration. Reports and statistics on these various activities are made public in the Board's monthly organ, The Social Bulletin (Sociala Meddelanden).

c. The Cooperative Movement.

(1) Growth.

In Sweden as in Denmark, the cooperative movement has made great strides among the farmers. But the distinctive feature in Sweden is the growth of a consumers' cooperation movement

The Development of the Consumers' Societies.



which draws its support from any social group, though farmers and laborers are its first support. The big step forward was the federation in 1899 of the scattered local societies into the Cooperative Union (Kooperativa Förbundet). The growth of the movement has been substantial as the accompanying diagram indicates. The Union now includes 97% of the local consumers' societies. Two-thirds of these are rural. The membership of the individual local is not large, indicating that the movement is widely dispersed. But the Stockholm Society had over 75,000 members in 1935. By 1939, the consumers' cooperatives in Sweden numbered 807 locals supported by 732,169 individuals. If each member represented a family of three, this should mean that nearly one-third of the population supported the cooperatives. The invested capital that year amounted to $13,991,520, the turnover of business $150,432,960, and the net profit for the year $6,296,160.

(2) Significance.

What has distinguished the Swedish movement is its pronounced social significance. The Union has carried on an educational and propagandist endeavor of major importance. By correspondence and by courses formally given at its Training Institution (Saltsjöbaden), the Union trains specialists and workers to carry forward its program. A planning office prepares blue prints from which are constructed new local stores. The Union has also entered various lines of production and now possesses flour mills (The Three Crowns), a margarine factory, an oatmeal factory, a bakery, a coffee roasting plant, etc. Shoes, galoshes, and rubber tires are manufactured. On an international scale, electric light bulbs have been manufactured in collaboration with central cooperative organizations of the other three northern countries.

The cooperatives in Sweden have helped to increase the sense of solidarity in Swedish society. They must be counted one of the stabilizing factors in Swedish social life.

(504)

21. Labor.

a. Growth of Labor Population.

Traditionally an agricultural country, Sweden has in recent decades undergone a process of rapid industrialization. In 1870, trade and industry engaged only 20% of her people, in 1930 the figure was 54%. In that span of years the industrial and commercial population increased from 825,000 to 3,300,000 persons.

b. Organization.

Capital and labor are well organized. Labor was the first to organize on a national basis. In 1898 a number of unions formed the General Federation of Trade Unions (Landsorganisationen or L.O.). A threatened strike of wide dimensions in 1902 brought into being the Federation of Swedish Employers (Svenska Arbetsgivareföreningen). Trade associations as well as individuals are members. In 1938 the number of members was 4,200, employing a total of 347,000 workers. At the same time, the General Federation of Trade Unions had jurisdiction over 42 federations of trade unions, or 840,000 individuals. The trend has been toward the industrial type of union, which now accounts for 65 to 70% of the membership. A few trade union groups are still outside the General Federation, notably the syndicalist organization. The total number of Swedish workers in unions by the end of 1939 was 1,008,000. The total number employed under collective agreement was 1,047,771.

c. Collective Bargaining.

Relations between the General Federation of Trade Unions, and the Federation of Swedish Employers have been regularized in a manner that has come to be looked upon as most commendable. Both sides learned much from a series of lockouts and a general strike in the autumn and early winter of 1909. Out of this experience evolved a procedure of collective bargaining and collective agreement, which now has become a well established tradition. But the system of wage contracts thus negotiated often becomes very complex, and disagreements

arise. To deal with these, there are public mediation and arbitration bodies. In the last resort, the disputes may go to the Labor Court, a body composed of two representatives of workers, two of employers, two lawyers, and one impartial expert.

d. Wages and Price Indexes.

A master wage agreement between the two leading federations in January of 1942 indicated that both are in a mood to compromise under the present trying conditions. The negotiators carried forward the principle of tieing the wage scale to the commodity price index. A wage increase of 4% was agreed on, which in April was again increased by 2.5%. The successive wartime increases in wages brought about by collective bargaining now amount to 19.2%.

Some idea of the industrial capacity of the workers may be gained from a comparison of the chief products of manufacture as discussed in paragraph 31b (manufacturing) with the figures on Wage Statistics for 1939. Totals for the latter show that 563,522 workers were employed in the major industries in 1939. For figures on each major industry see the Appendix.

e. Wages.

The average hourly rates of pay in 1939 were 107 öre (26 cents) for men and 71 öre (17 cents) for women in poorer paid (chiefly agricultural) areas, while the equivalent figures for areas of high wages (chiefly urban) were 195 öre (47 cents) for men and 98 öre (24 cents) for women. In Stockholm the average rates were 193 öre (46 cents) for men and 100 öre (24 cents) for women. Among agricultural workers the yearly cash wage for 1940 was 831 kronor ($199) for men, and 537 kronor ($129) for women. The figures for the total rural wages for the year were respectively: 1,407 kronor ($338) and 1,057 kronor ($254). Monthly wages for seamen in 1939 ranged as follows: able-bodied seamen, 170 kronor ($41); carpenter and boatman, 180 kronor ($43); fireman and motorman, 169 kronor ($41); cook, 184 kronor ($44); steward, 237 kronor ($57). For an indication of the

distribution of family income levels according to their proportion of the total population, see the Appendix.

In translating these income figures into American standards, some allowance must be made for the fact that the purchasing power of the Swedish krona within Sweden is high. Though the foreign exchange rate is only about 23.90¢, the domestic purchasing power may range from 35 to 50 cents in our currency.

22. Public Health

(This section is being prepared by the Office of the Surgeon General, United States Army).

23. Education.

a. Literacy.

Sweden is one of the most literate countries in the world. In 1930, 4963 persons - 2,711 men and 2,252 women - were unable to read or write. Another 15,202 - 4,750 men and 10,452 women - could read but not write. This makes an illiteracy percentage of less than .3%, a truly negligible figure when it is remembered that a number of the nomadic Lapps help to make up part of this ratio.

b. The public school.

The elementary school is the basic unit in the school system. It covers the school age 7-14. In 1937 the children of school age numbered 654,405. The Swedish public school system has attained a high order of competence. It seeks to nourish the pupil's physical and emotional life as well as his strictly mental processes. Gymnastics (as is natural in the country of Per Henrik Ling) have a definite part in the curriculum. Free lunches help to adjust deficient home diets. Staff dentists and physicians keep a check on signs of ill health or lowered vitality.

c. Secondary schools and Universities.

Beyond the elementary school a series of schools help to carry instruction beyond the primary grade for many Swedes. There are continuation schools of two types, higher elementary schools, secondary schools of several types and four Universities. Adult education flourishes in a variety of forms.

Some secondary schools prepare for entrance to less advanced colleges or institutes of technical training. Graduates from these schools in 1940 numbered 7005. The same year, graduates from the gymnasia (grammar schools) preparing for the Universities numbered 3,639. There are four Universities in the country, two State supported, Uppsala and Lund, and two maintained by private or municipal resources, Stockholm and Göteborg. The enrollment at each in 1940 was: Uppsala 2,359; Lund 2,217; Stockholm 1,731; and Göteborg 447.

d. Technology.

The advanced development of its engineering industries - mining, steel and electrical - and the pulp and paper manufactures, make it certain that instruction in technology is well subsidized in Sweden. The Royal University of Technology is at Stockholm and at Göteborg is the Chalmers Institute of Technology. At Stockholm and Filipstad are Schools of Mines. The state supports also a College of Forestry and a Commercial University College. Several academies sponsor research, as the Academy of Sciences founded in 1739, and the Academy of Engineering Research established in 1919. The Swedish Ironmasters' Association, founded in 1747, sponsors research in the metallurgy of iron. There is a Metallographical Institute and a Cellulose Research Laboratory. These and other scientific agencies help to keep Sweden among the leading industrial states in certain lines of manufacture.

e. People's High Schools.

Adult education has developed rapidly in Sweden. The People's High Schools, influenced by the Folk High School movement in Denmark, aim to inspire students as well as instruct them. The Swedish People's High Schools, now some 60 in number, are less exclusively frequented by farming youth than are the High Schools in Denmark, and they are more closely associated with the labor movement. At Brunnsvik in the old province of Dalarne there is a workers' college which aims to train promising young people for trade union activity. The People's College idea has been tried also in three church colleges (one supported by Free Church energies), and a temperance college; the Cooperative Union spoken of in an earlier passage, has adapted the idea to its Training Institution at Saltsjöbaden.

f. Study Circles.

Adult education has been sponsored especially by labor union circles and by temperance societies. Perhaps the most distinctive vehicles for their propaganda work have been the study

circle and the People's Library. There are now about 7,000 public libraries in Sweden lending annually over 15,500,000 volumes a year. But it is the study circle, the "circle of comrades" of ten to fifteen members, that is a distinctive Swedish development, so distinctive that efforts to transplant it to other countries, uniformly seem to fail. The study circle took its point of departure from a Good Templar lodge in Lund in 1902. The central feature of the Swedish study circle is the emphasis on individual, personal activity. Each member makes a preparation for the meetings by reading at home. Each, therefore, is better prepared than any other member present, to elaborate the ideas of a particular writer.

The study circles turned out to be "seats of culture" in several of the popular and democratic movements. Workers' organizations, especially, took up the ideas; the Workers' Education Association was founded in 1912 by Richard Sandler, the former Swedish Foreign Minister who was forced from office by Nazi pressure in the winter of 1939. The number of study circles operating annually in Sweden is now over 12,000. Here certainly is one of the important factors making for an enlightened citizenry; here is entrenched the idea that opportunities for the display of individual initiative are indispensable to the maintenance of democracy. In fact, the country's educational system as a whole has been a prime factor in stimulating pride in country, a highly developed sense of political justice, widespread interest in national affairs, and strong social consciousness. That system supplies one of the prerequisites for a high national morale.

24. Religion.

a. State Church and Dissenters.

The religion of Sweden is Lutheranism, adopted in the sixteenth century. The church is a state church and in formal membership it includes 97% of the population. The figure is 86% if one omits the Lutheran groups which do not receive state subventions. Some of these, notably the Swedish Mission Association, enjoy their own organization, and disapprove of much in the state church. Yet they protest their allegiance to the church. The reformed groups are also represented, though apart from the Baptists and the Pentecostal Friends, their numbers are small. A table of religious membership is given in the Appendix.

b. Organization.

The Swedish church is democratic. Local parishes choose their church boards, directly or indirectly, and elect their own pastors. There are 2,564 parishes in the country, united in 1,379 rectorial districts. These are grouped in 187 rural deaneries, and 12 dioceses. The primate of the country at present is the Archbishop of Uppsala, Erling Eidem. At least once every five years there is a gathering of the national representation of the church, the Church Assembly. To this are elected 60 representatives, half laymen and half clergy. The Archbishop of Uppsala is the presiding officer, and the bishops are ex-officio members (for a list of the present bishops see the Appendix).

c. Historical.

In the nineteenth century the Lutheran church found itself in a hostile cross fire of criticism which wore down its membership. On the one hand, the pietist lay movements criticized it as too cold and formalistic; on the other, liberal and later, radical movements challenged it as too dogmatic and restricted. Both of these trends gained support among the masses.

d. Proposals for World Church Unity.

In the nineties, the state church experienced a renewal of vitality. The most distinguished name associated with this renewal was that of the late Nathan Söderblom, archbishop of Uppsala. Söderblom was interested in the post-war ecumenical movement, looking to general unity of the Christian church. One of the notable Councils of this movement, was that at Stockholm in 1925. It created an official representation of the evangelical and orthodox groups - including Lutheran, Calvinist, Anglican, Methodist, Baptist, Congregationalist, Uniat, Greek, Balkan and Russian churches. Out of this came the Universal Council on OEcumenical Life and Work (the OEcumenical Council). Söderblom died in 1931, however, and the next decade was not favorable to ideals of world unity in any form. But once present hostilities cease, it may well be that the traditions of wider international organization will again assert themselves within a wing of the Swedish Lutheran clergy.

e. Anti-Nazi stand of clergy.

Meanwhile the leadership of the Swedish church is fully alive to the tragedy of the present world situation and has made itself a spokesman of the ideals of Northern unity. Thus an episcopal Lenten letter of February 15, 1942, evoked widespread attention, for its unequivocal espousal of the cause of both Norway and Finland. Individual members of the clergy too, spoke in favor of the common Northern front. Only in one quarter has there been any sign of pro-Nazi sympathy. In the Gothenburg diocese the Lenten letter was ignored in 10 parishes (it was optional here); a religious organ called Göteborgs Stiftstidning has pro-Nazi leanings. Its editor is a Rev. Ivar Rhedin.

25. Public Order and Police.

a. Respect for Law and Order.

The Swedish people are law-abiding. By the thirties, the number of individuals sentenced for murder and manslaughter had dropped to a low figure. Only 10 people were sentenced on this charge in 1936 and again in 1937; in 1938 the figure was 7 and in 1939 it dropped to 4. Figures on other sentences in 1939 were: sex crimes, 163; cruelty to animals, 154; rapine and extortion, 23; fraud, 1,527; drunkenness, 24,478. Revealing too, were the figures on imprisonment. The prison population at the end of 1940 was 2,008 persons, or a ratio of 3.16 per 10,000 inhabitants. There were only 13 prisoners serving a life sentence; one life sentence was imposed in 1939, but there was none in 1938 or 1940.

The war, however, has brought some increase in criminality. The prison population was down to 1,769 at the end of 1939, but by the end of 1941 it had risen sharply to 2,436. The number of life sentences was 15.

The police system is somewhat decentralized. Authority tends to be lodged in the administration of the provinces or the magistrates of the towns. Each city and each köping constitutes a police district. The remaining area of each province is divided into police districts, arranged so far as possible to include one or more landskommuner (parish communes). The local official in these rural districts is the fjärdingsman (parish constable).

Towns with a population of 10,000 must maintain also a reserve police, in the ratio of one for each 10,000 inhabitants, the minimum being three. From the reserve police are recruited members of a state police, equipped for service beyond the limits of the urban centers. Towns with a reserve police must likewise maintain a specially trained criminal police. Stockholm has to maintain also a police training college, and a finger-print bureau.

Though its personnel is relatively modest in numbers, the police system is organized with care. The quality of

the personnel is high. Tests of a civil service character are required and much of the personnel is drawn from the army. The files kept are very complete, and there is a constant check upon all aliens.

Naturally the problems of war and neutrality have put new demands on the services. In 1940 a special police control was established in all important ports to watch especially foreign crews. In May 1941, a special emergency police -- recruited from volunteers and from the enlisted personnel of the army -- was organized to help the regular police in guarding communications, power stations, and industries, in the event of war.

A measure of local civilian control over the police administration is retained. Thus the parish constable is chosen by the local commune from a list of several candidates certified by the provincial prosecutor; the man thus elected is then endowed with his powers by the provincial administration. Associated with each provincial administration -- and municipal government -- is a police board to consider infractions of discipline by members of the police force. All but its chairman -- chosen by the Crown -- are elected by the provincial council or by the municipal authorities.

CONFIDENTIAL

26. Press, Propaganda and Censorship.

a. The Press.

(1) Press Circulation and Party Support.

The Swedish press is an active factor in public life, though the correlation between the circulation of newspapers, and the political preferences of voters, does not seem to be very close. On the basis of provincial elections, the Social Democratic Party in 1938 enjoyed the support of 46% of the voters, but its press was only 13% of the total daily newspaper circulation. It was made up of 32 media with a combined circulation of 340,000. In other groups the figures were: 107 papers of the Right with a circulation of 817,000 copies; 73 of the middle class Left with 1,144,000 copies; and 17 of the Agrarian group with 131,000 circulation. A recent poll indicates that 95% of the adult Swedish population reads at least one daily paper; about 63% read one weekly.

(2) The Daily Press in Scandinavia.

It should be remembered that in Scandinavia generally, the daily newspaper is more important than the magazine. It frequently contains articles by specialists on involved matters of public policy -- the kind of article that in our practice is carried in the heavy monthly reviews. As a rule, each daily is the spokesman of a political party, but its political association is uniformly a wholesome one based upon frankness and conviction. For a table of the political affiliations of the leading newspapers, see the Appendix.

(3) Liberal, Conservative, and Nazi Papers.

Two papers enjoy a leadership and prestige, because of their moderate tone, and their preeminence in covering literature and the arts. They are the liberal Dagens Nyheter, owned chiefly by the Bonnier publishing family, and the conservative Svenska Dagbladet. More aggressive in its conservatism is Nya Dagligt Allehanda in which the industrialist Axel Wenner-Gren has had a controlling

interest. The leading organ of the Agrarians is Skänske Dagbladet at Malmö. Torsten Kreuger, brother of the late match King, purchased control of Stockholms Tidningen in 1930 and of Aftonbladet, one of the oldest papers, in 1932. Both now have pro-Nazi leanings, Aftonbladet especially. Rütger Essén, a former pupil of Rudolf Kjellén (one of Karl Haushofer's teachers), was until recently foreign editor of Nya Dagligt Allehanda. In recent months he has launched an out and out pro-Nazi daily called Dagsposten. Minor sheets of Nazi tendencies (not necessarily dailies) are Dagens Eko, Göteborgs Stiftstidning, Den Svenska Folksocialisten, Göteborgs Morgonpost, Hälsingborgs Dagblad, Nationell Tidning, Nationell Kronika and Sverige Fritt. The latter has recently been interfered with by the government.

(4) Papers of the Left.

On the Left, the leading organ is Social-Demokraten. In order to counterbalance the Kreuger papers, the federation of trade unions (L.O.) launched in March, 1942, a daily called Aftontidningen. The Social Democratic organ at Göteborg is Ny Tid; Arbetet is the equivalent medium at Malmö. Nordens Frihet is a journal of opinion, committed to the ideals of Northern Unity, and is pro-Ally in sympathy. In a class by itself is the independent liberal daily, Göteborgs Handels - och Sjöfartstidning, long edited by Torgny Segerstedt. Uncompromisingly opposed to the totalitarian philosophy, this medium has long been the outstanding pro-Ally paper in the country. Its third page, on which appears the articles of opinion, is widely scanned by many readers who are not necessarily in sympathy with some of its policies.

b. Press Services and Propaganda.

(1) The central news agency, owned and operated by the Swedish press, is Tidningarnas Telegrambyrå. Svensk Internationella Pressbyrån is owned by the General Export Association of Sweden. Enjoying semi-public support is Svensk Amerikanska Nyhetsbyrån, which serves especially the Swedish-American press in the United States.

(2) Nazi Press Services.

The agencies discussed are the normal services. But the exigencies of war have made the capital of Sweden (like that of Switzerland) a hotbed of rumor and propaganda. At Stockholm there have appeared several agencies, ostensibly neutral, but actually pro-German. Some success has attended the efforts of Skandinaviska Telegrambyrån, (S.T.B.) whose manager is a former Swedish consul in Germany. The agency is subsidized from Germany and supplies the Swedish press with news at cheap rates. There are main offices at Stockholm and Copenhagen, and a branch office at Amsterdam. S.T.B. has remoter connections with Transocean, one of Goebbel's two pet agencies (the other being Europapress). German influences in Stockholm assert themselves also through King Features Syndicate, and Bulls Presstjänst. Stories floated in Berlin, for instance, are sent to the Bull service for the use of the Swedish press. The Skandia Press also may have Berlin connections, though its active ties have not been too openly pro-German. A newly organized news service is Radio Mundial (World Radio) with headquarters in Lisbon. 30% of the shares in it are held by Swiss, French, and Swedish interests, but it is sponsored by the German government.

(3) German Propaganda.

In Sweden, as in other countries still neutral, the Germans have carried on propaganda along various avenues. A daily stencilled bulletin in German called "Politische Information" is widely circulated to newspapers and private persons by the Press Department of the German Legation (which employes a staff of several score persons). German-printed material also is distributed through the Legation. The German Travel Bureau in Stockholm distributes literature to German firms in Sweden and in Germany. Film contracts call for the showing of U.F.A. newsreels with German feature films. Anti-British and pro-German literature appears under the imprint of two German-controlled publishing houses -- Svea Rikes Förlag and

Neutrala Förlaget. Special issues of Berliner Illustrierten Zeitung called Signal are widely distributed. But apparently only modest success has attended efforts to spread German propaganda through special channels, such as church groups, or the theater and the book market. Among the army officers, there was at first some admiration and some sympathy for German aims, but there is ground for concluding that this admiration has lagged of late as the pressure of Swedish public and governmental opinion has made its influence felt. Efforts by individual Swedes such as Bertram Schmiterlöw and Karl Holmstrand to enlist Swedish recruits for German service have met with no striking success.

(4) Allied Propaganda.

On the allied side, the press section of the British Legation in Stockholm, has been publishing Nyheter från Storbritannien. In December, 1941, the British opened a separate Bureau of Information under direction of a Professor Ronald Bottrall. Early in 1942 our State Department (and the COI) have taken steps to establish in Stockholm a similar center of information.

(5) The Swedish Information Agency.

The Swedish government took steps in 1939 to refashion its own information service. An arrangement inaugurated in 1935 had been designed to furnish abroad reliable information about Sweden. But the outbreak of a new World War called for something more positive to check and refute quickly erroneous and misleading radio information about Sweden, as released by the belligerents. By mid-September 1939, an Information Bureau was in operation, and in February 1940, it was superseded by the Swedish State Information Agency.

The Information Agency functions through several divisions specializing on the press, on propaganda, and on civic preparedness. The latter effort keeps in close contact with the well-known Swedish study circles, as sponsored by the trade

unions, the cooperatives, adult education groups, and women's organizations. Twice a month the Agency publishes a periodical. Leaflets and statements are distributed to encourage caution and alertness, and extensive use is made of the radio. One of the most effective representatives of the Information Agency is a Major Arvid Eriksson, formerly public relations chief for the armed forces, who in an effective fashion brings home to the people the needs of defense and civilian morale. At the head of the Agency is Sven Tunberg, rector of Stockholm University, and one of Northern Europe's outstanding men of culture, in whom Swedish citizens have general confidence.

c. Censorship.

(1) Revision of the Law on Censorship.

Sweden has long been proud of her press law, which dates in part from the eighteenth century, and in part from the early nineteenth. No wonder the attempt to change it in recent years aroused widespread discussion. A commission went to work in 1938 and in 1941 the Constitution was amended on this important matter. The amendment specified that in time of war, or threat of war, the government might prohibit the publishing of any news which might be injurious to, or might impair, the nation's security. It provided further for censorship, likewise in case of war or threat of war. But if censorship is exercised, then the Riksdag must convene within 30 days. Within another 30 days it must sanction the order and do so by a 3/4 majority in both houses, otherwise the censorship is invalid.

Discussion on the government policy toward the press centered not alone on this constitutional amendment; much argument was devoted to an emergency law, enacted to meet the current situation. This law of March 1, 1940, authorized the government to exclude subversive publications from the mails, and from other means of transportation. A few days after the invasion of Norway and

Dermark, on April 12, 1940, all newspapers were ordered to refrain from publishing information on troop movements, and on other matters relating to extraordinary defense measures.

(2) Government Interference with the Press.

Each belligerent side in the present war has sought to make it appear that Sweden has been unduly favorable to the opposing side. In substantiation of this claim, the government's policy toward the press has been cited. The record of that policy does not prove the point of either side. It should be noted that censorship has not yet been applied. The interference so far has been with the circulation of media once published. Two cases have aroused wide public interest. One was the three month's sentence of Ture Nerman, whose medium Trots Allt, together with four Communist papers, was refused distribution for half a year (privately Trots Allt sold briskly at times during this period). The other case was the government's action in February 1942, of withdrawing from circulation more than a dozen provincial papers conveying full accounts of atrocity stories about the occupying authorities in Norway.

(3) Extremists on both sides Suppressed.

The Swedish Government's supervision of the press -- in spite of momentary yielding to strong pressure by Germany -- seems to show a desire to stay neutral. If the Swedish edition of a British White Paper, or an edition of Herman Rauschning's second volume were withdrawn, so also were three books by German writers on British policy in Ireland, South Africa and India. Five editions of Hitler Speaks were withdrawn. Individual issues of the strongly pro-Ally Göteborgs Handels-och Sjöfartstidning were seized, but the German Signal was also confiscated, and the pro-Nazi editor of Sverige Fritt was given a four months' prison term. Göteborgs Stiftstidning was molested for calling Stalin a "mass murderer".

Significant also is the fact that the news

channels have been kept fairly open. Swedish dailies still keep correspondents in all the major capitals. More material is taken from Reuter's (British) service than from the German news agency. Of particular significance is the attitude toward Norway. What news the world gets out of Norway comes in large part by way of Swedish news services. The only Swedish paper the Quislingites will allow in Norway is Aftonbladet (universally known to have pro-Nazi leanings). The remainder cannot be judged very pro-Nazi by those presently in control in Norway.

(4) Support of the Policy of Neutrality.

The Swedish press is first concerned to print no matter that will force its government to desert the policy of neutrality. Beyond that it naturally wants to supply as much news as it can. It may have to yield to German pressure on occasion, but its sympathies, in a majority of cases, are with the Allied Nations.

d. Radio.

Next to Denmark, Sweden has the highest ratio of radio receiving sets in Europe. The number of licensed sets by spring 1941 was over 1,500,000. If three persons on an average listened to one set, this meant that 2/3 of the population daily made some use of the radio. The broadcasting service is now largely a state undertaking (details on the organization will be discussed in Section 39 below), and the government is in a position to influence the programs broadcast. The desire to avoid offending powerful belligerents on either side is a natural consideration. There have been charges that the Swedish radio is pro-German, and no doubt at times it has reflected a measure of German pressure. But the Swedish radio has sought to maintain a neutral position, and the moment German might in this part of Europe can be matched with Allied military and economic power, Swedish broadcasting may reflect pro-Ally sympathies, if it chooses to deviate from a strictly neutral position.

e. Propagandist Appeal.

The Anglo-Saxon powers may be tempted to remind the Swedes of the traditions of democracy and freedom which they share in common. But this type of appeal is less effective than a direct reference to the accomplishments of the Swedes themselves. For the Swedes are proud of certain things. They have made notable contributions in technology, they once attained a distinguished military position, and they have brought democracy, on an indigenous basis, to a degree of achievement that other peoples envy. Their loyalty is to Swedish culture and to Swedish tradition. Any appeal to them beyond their own accomplishments must transcend the limitations of one set of belligerents, and seek to enlist their sympathies on a broadly humanitarian basis.

That the Swedes have developed a critical sense in listening to broadcasts of foreign origin is suggested by recent figures from the Swedish Gallup poll. 68.4% of those questioned never listened to Swedish broadcasts from England, Germany and Russia. Of those who did listen, 5% listened to all three countries; 1.1% only to British and Russian stations; and .4% to German and Russian only. 3% listened only to German broadcasts; 10% only to British sources; and 12.1% to both British and German stations.

27. General.

The consideration which best marks the contemporary political scene in Sweden is the almost universal desire to preserve the institutions of democracy. There has been developed an intricate network of political, economic, and social institutions which owe their existence to the democratic tradition, and in turn they sustain that tradition. Democracy in Sweden operates through the forms of parliamentary, municipal and local government, and through the agencies for administering the social services, for resolving labor conflicts and for carrying on the affairs of the cooperatives.

All the major parties are agreed that a close watch must be kept on any minority group that aims to substitute totalitarian procedures for the democratic practices. There is a high degree of unanimity in the support of the government's present foreign policies. Ever present is the dread of Russian expansion to the northwest, a fear now matched by growing apprehension over German influence in Finland and Norway. In the endeavor to preserve their own democratic traditions, the Swedes look, with benevolent eyes by and large, upon Great Britain and the United States.

28. Government

Sweden is a Constitutional Monarchy.

a. Monarchy.

Sweden has always been governed by a King. The monarchical tradition is centuries old.

The reigning monarch in Sweden is Gustaf V. He was born June 16, 1858. He came to the throne on December 8, 1907. He married on September 20, 1881, the Princess Victoria (1862-1930), daughter of the Grand Duke of Baden.

By law, the Swedish throne descends by primogeniture only to males and through males. The heir apparent is Gustaf Adolf. He was born November 11, 1882. His first wife was the British Princess Margaret (1882-1920), daughter of the late Duke of Connaught. His second and present wife is the Princess Louise (b. 1889) of Battenberg. The Crown Prince has by his first wife three sons and a daughter.

The King has a second son and three brothers.

b. Constitution.

Aside from two short interludes characterized by absolutist tendencies, the highly interesting and instructive constitutional history of Sweden has been on the whole the story of democratic development. A centuries-old Riksdag has existed alongside the King. Though the relationship between the two is thus ancient, it is in its modern form of relatively recent origin. Monarchy and political democracy have been reconciled, in accordance with the Continental European tradition, through the institution of Parliamentary Government.

The Swedish system of government rests on the basis of a written constitution. Though the present written constitution does not as such provide for the parliamentary system, constitutional provisions establish the essential elements; and from these the system has developed through customary practice.

The existing constitution dates from 1809. It is in a long tradition of governmental charters and instruments. The document of 1809 stipulates for additional fundamental legal documents on the subject of royal succession, the Riksdag, and the press. Therefore, basic law in Sweden falls into four parts. These are at present as follows:

(1) the Constitution of 1809;

(2) a Law of Succession, which dates from 1810;

(3) a Law on the Freedom of the Press, which dates from 1812; and

(4) a Law on the Riksdag, dating from 1866.

These four documents have in common that they may be changed only by a special procedure. This procedure consists of approval by two different regular sessions of the Riksdag, separated by an intervening popular election of the elective house.

Democratic Government operates in Sweden both at the national and the local level.

a. Central Government.

(1) The Executive.

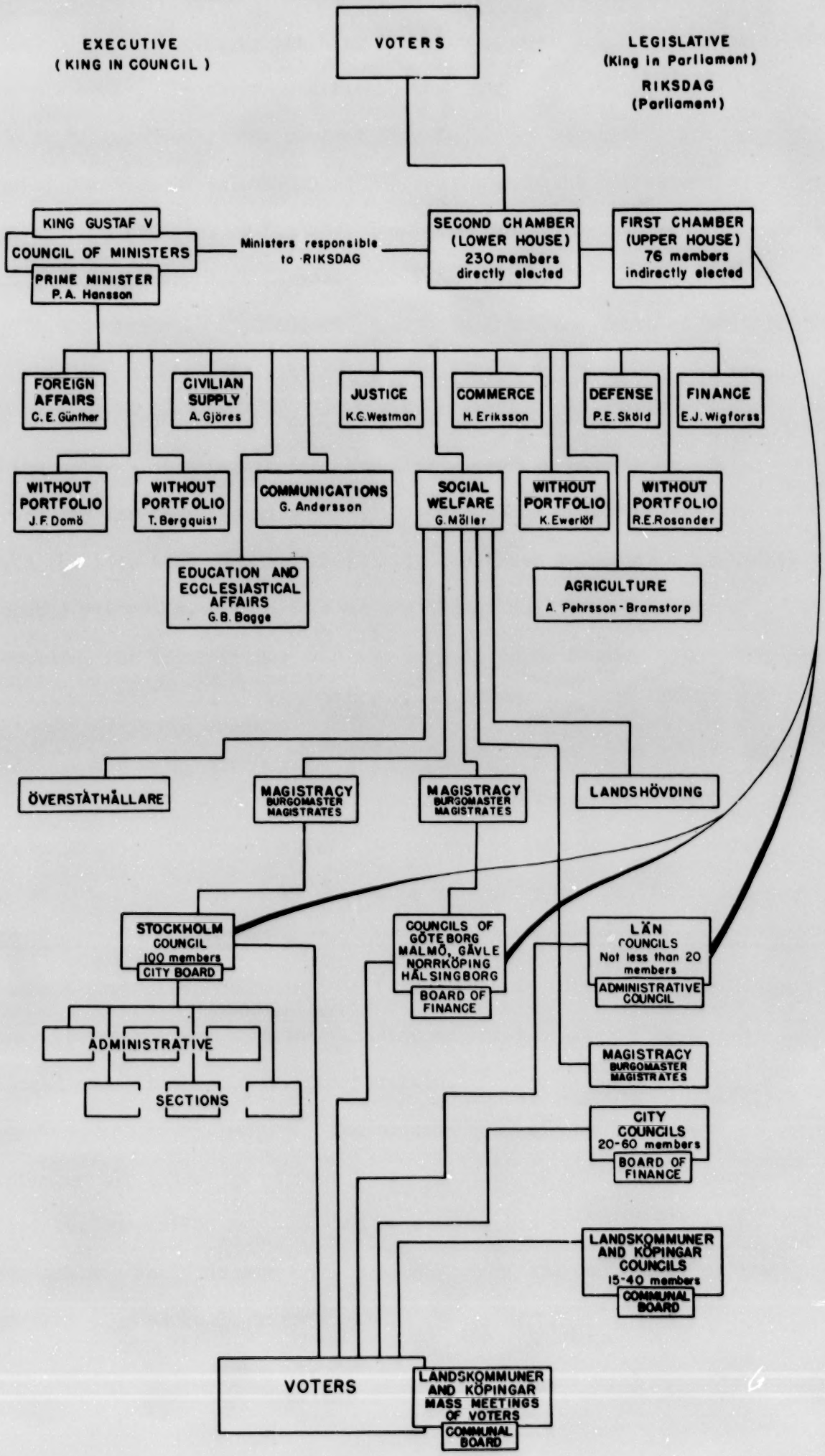
The Swedish Constitution vests executive power in the King in Council.

(a) The King.

The constitutional position of the Swedish King has in general come to conform with the traditional model of a Head of State under the parliamentary system of government. This position tends to be a symbolic and ceremonial one. At the same time, not only is this aspect of the position one of considerable importance; within its limits, the King exercises undoubted, though not easily definable, political influence. In accordance with the Constitution, he takes decisions in Council after hearing the advice of the members. A typical provision requires that the King's decisions shall be countersigned by the Council. Likewise, the Council is responsible to the

SWEDEN

POLITICAL ORGANIZATIONS



No. 536, June 18, 1942

Drawn in the Geography Division, O.S.S.

Free

Riksdag. Hence, though the Council cannot in the name of the Crown take independent action, the King in practice does not act against the ministers. In these conditions, the King is something more than a mere "figurehead". The present King is highly respected; but his social position is somewhat more democratic than the corresponding position of the King of England, the trappings of Swedish monarchy being considerably less lavish. The King's civil list amounts to 1,771,900 kronor ($425,256), which is only about one-tenth of one per cent of ordinary annual national expenditure. To this is to be added an annuity of 300,000 kronor ($72,000). It is said that the people think nothing of the fact that the King's brother goes to an office every day and that the King was a fellow student at the University with the late Labor leader, Branting. The Crown Prince is a genuinely capable statesman. There is a saying that should Sweden become a republic, the Crown Prince would be certain to be elected president.

(b) The Council.

The Council or cabinet (Statsrådet) consists at present of 15 members. The greater part of these is made up of heads of State Departments. The number of Departments is determined by statute, supplemented by executive decree. Actually, there are ten Departments. The other members of the cabinet consist of five ministers without portfolio, including the Prime Minister (Statsministern), the only minister other than the Minister of Foreign Affairs to be mentioned specifically in the Constitution.

The present cabinet was formed on December 13, 1939. It represents a coalition of parties. Members from the opposition are included because of the critical situation of Sweden in a world at war. The composition of the Council is at the present time as follows:

Minister	Incumbent	Party
Prime	Per Albin Hansson	Social Democratic
Foreign Affairs	Christian E. Günther	No regular affiliation
Justice	Karl Gustaf Westman	Agrarian
Finance	Ernst Johannes Wigforss	Social Democratic
Social Welfare	Gustav Möller	Social Democratic
Defence	Per Edvin Sköld	Social Democratic
Communications	G. Andersson af Rasjön	People's
Education and Ecclesiastical Affairs	Gösta B. Bagge	Conservative
Commerce	Herman Eriksson	Social Democratic
Agriculture	A. Pehrsson-Bramstorp	Agrarian
Civilian Supply	Axel Gjöres	No regular affiliation
Without Portfolio	J. F. Domö	Conservative
Without Portfolio	R. E. Rosander	Social Democratic
Without Portfolio	Thorwold Bergquist	People's
Without Portfolio	Kunt Ewerlöf	Conservative

(c) Administration.

Swedish state or central administration is well integrated. Aside from a few exceptions, all agencies of administration, including approximately forty boards, commissions, and the like, which in the United States are classed as independent establishments, are in Sweden distributed logically among the Departments.

There is no central civil service commission in Sweden. At the same time, civil servants are chosen on the basis of merit. The method is not written examination, but competitive interview. Several grades of service exist, with different educational qualifications established as prerequisite for interview. There is a definite distinction between civil servants entering the administration after the University and those entering at an earlier stage. Administrative service is a career. Tenure, promotion, retirement, and the like are carefully regulated.

In general, Swedish administration possesses an old and respected tradition. The public takes much interest in administrative affairs. The civil servants enjoy a high social position.

(2) The Legislature.

The Riksdag is bicameral in structure, being composed of a First ("upper") Chamber and a Second ("lower") Chamber. The First Chamber is composed of 150 members, the Second Chamber of 230. The members of the First Chamber are chosen indirectly. They are elected by certain local councils for a term of eight years, one-eighth retiring each year. The members of the Second Chamber are elected all at one time for a four-year term directly by the voters through a system of proportional representation. Suffrage rests on a broad basis, most men and women of twenty-three years of age or more being eligible to vote.

The two Chambers hold regular annual sessions, and they may be called into special session. Their practical operation is naturally much dependent on the presence in them of political parties. The Chambers choose their officers and make their rules. The committees, through which much of the Chambers' work is accomplished, are characterized by being joint committees, each Chamber choosing one-half the membership. The Chambers possess equal powers. They vote laws and pass financial measures. In the second respect, they meet in joint session in case of disagreement. The members of the cabinet have access to the Chambers; and they exercise strong leadership in them. As noted above, the cabinet is responsible, according to the principles of Parliamentary Government, to the Riksdag.

b. Local Government.

(1) Areas.

For purposes of local government and administration, the principal subdivision of Sweden is a county-like area known as the "län". There are 24 of these areas. Standing on the same

governmental plane, that is to say, standing outside the jurisdiction of the län, are several large urban centers. These urban areas include in the first place the metropolitan community, Stockholm, and in the second place five municipalities with populations in excess of 50,000, -- namely, Göteborg, Malmö, Norrköping, Hälsingborg, and Gävle.

On a lower rural administrative level, the län are subdivided into areas known as "landskommuner", for the most part identical in boundaries with rural ecclesiastical parishes. There are nearly 2400 of these. They have an average population of about 1700 and an average area of somewhat less than 75 square miles.

Urban communities within the län are of several kinds. In the first place, there are more than one hundred cities (städer). All are independent of the landskommuner but, aside from the six larger municipalities mentioned above, not independent of the län. Within the landskommuner, but established as separate urban communes, are 45 small towns or villages known as "köpingar". Possessed of less autonomy, but nonetheless endowed with a few extra powers, are some 220 densely populated areas in the landskommuner, which are known as "municipalsamhällen".

(2) Agents and Organs.

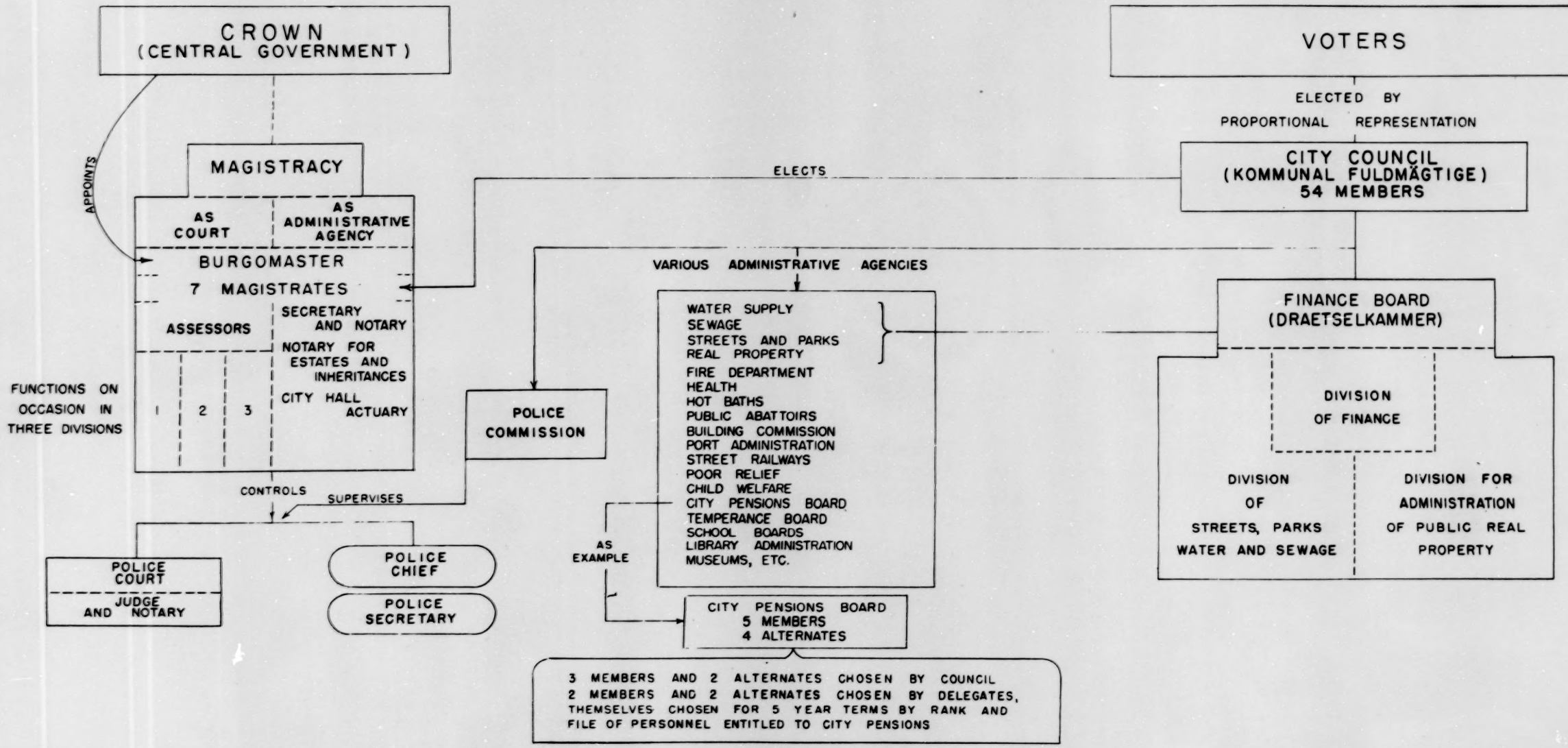
(a) Legislative. -- All län and the bulk of the cities, landskommuner, and köpingar have small representative councils. The län councils vary in size, but they cannot have less than twenty members. Cities, landskommuner, and köpingar are in theory governed by primary mass-meetings of voters. However, an area of more than 1500 inhabitants must, and any smaller community may, have a representative council. As a result, all the cities with one exception have councils. The size of these city councils varies from 20 to 60. The Stockholm council consists of 100 members. Landskommuner and köpingar councils vary from 15 to 40 members. In all cases, councils are popularly elected, this fact being symptomatic of an ancient tradition in Sweden for local self-government. Local suffrage is for practical

purposes the same as for national elections. The regular term of members of local councils is four years. The councils are miniature legislatures, which determine principles of local policy and administer local finance through control of local budgets.

(b) Executive. -- In respect of local agents and agencies that may be regarded as executive in character, two considerations are of importance: in Sweden, a careful distinction is made between local administration of national affairs and administration of local affairs; and separation of powers is commonly said to be disregarded at the local level. The first consideration is illustrated by the position of the prefect or governor of the län (landshövding), -- in Stockholm the High Governor (överståthållare); and the second is illustrated by the absence of single independent local executives.

The landshövding is appointed by the central government. His primary function is that of representing in the län the cabinet in general and the Department of Social Affairs in particular. He takes care that national laws are properly administered locally. In this way, the central government exercises much supervision and control. Of the several subordinates of the landshövding in the län, special mention should be made of the chief clerk (landssekreteraren), who is concerned with public health, poor relief, police, and election administration, and of the chief accountant (landskamreraren), who is concerned with financial administration in the län. In each län there is also a chief constable (landsfogden), who, under the landshövding, is the chief of police for the area. In the typical city, there being some exceptions, the national government is represented, under the authority of the landshövding, by the magistracy (magistraten), consisting of a burgomaster and magistrates (rådman). The burgomaster is appointed by the central government from among three candidates chosen by the voters. He is always a lawyer. The magistrates are appointed by the city council, and they are usually lawyers. The magistracy, in addition to its administrative functions, also serves as a court (rådstuvurätt).

GOVERNMENT OF THE CITY OF MALMÖ



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In the län, an administrative committee (förvaltningsutskott) is chosen by the län council. This committee primarily carries on the business of the council in the interval between sessions. There is otherwise no executive, strictly speaking. In the cities, execution of local decisions is the province of various boards and committees, especially a board of finance, chosen by the city councils. In the landskommuner and köpingar, the chief executive authority is a communal board, of from five to eleven members, chosen by the councils where they exist, and elsewhere by the primary mass-meetings of voters. Other boards and committees may be, and usually are, chosen.

The number of lesser officials and employees naturally varies with the size of the area and the extent of the functions performed. In the larger communities, local agents are organized into departments. Stockholm, though in certain respects unique, is the outstanding example. There, the existence of the överståthållare, who, as has been said, has in general the same position as the landshövding in a län, gives to the central government a position different from that which it has in other cities. The överståthållare, who has an assistant, is both the ceremonial head of the city and possessor of broad supervisory authority and of power of veto in respect of certain matters. The magistracy, consisting of the burgomaster and twenty magistrates, is now almost solely a judicial body, the överståthållare for the most part performing the administrative functions that belong to the magistracy in other cities. The chief executive agency in Stockholm is a city board (stadskollegiet). It consists of the president and two vice-presidents of the council, of six paid members who are chosen by the council from inside or outside itself and each of whom heads a special department, and of nine unpaid members of the council. Associated with the six departments are various boards, commissions, and offices that are concerned with municipal acitvities.

(3) Functions.

Local functions in Sweden are those of a socially developed country. The län and its subdivisions are concerned on their respective levels with things like police, public health, poor relief, child welfare, schools, communications, alcoholic beverages, old age pensions, unemployment, and so on. With respect to many of these, the län exercises supervision and control of its subdivisions in a way analogous to that in which the län is supervised and controlled by the central government. Roads now fall within the province of special districts. Urban communities have not only the same general functions as the rural communities; they have additional functions imposed by urban conditions. Furthermore, some functions, such as public health, housing, and maintenance of law and order, involve greater problems in urban communities than in rural. Finally, municipal ownership and operation are unusually widely extended in Sweden. Such activities extend to water, electric, and gas plants, to street car systems, and to markets, slaughterhouses, and even laundries. Particularly striking is the extent to which the cities have bought up surrounding land.

29. Political Parties.

a. Party Strength.

In the free democratic conditions that normally prevail in Sweden, differing political, economic, and social views manifest themselves. The inevitable result is the existence of political parties.

Party activity and the operation of government are reciprocally related, each influencing the other. More particularly, the principal parties that are organized in the country at large are represented in the membership of the Chambers of the Riksdag. In fact, the prevailing system of proportional representation causes the relative voting strength of the parties to be reflected in their relative strength in the Chambers.

In normal times, Swedish parties, especially the major parties, fall into fairly well defined camps of Right and Left. The Left is composed of the Social Democratic and the Agrarian Parties. In recent years, these parties have constituted a majority in the Riksdag. At the present time, the members of the Social Democratic Party alone make up a majority. However, a coalition of the major parties has, because of the war, been formed; and the Right, composed normally of the People's and Conservative Parties, is no longer in opposition. Party controversy has been postponed for the period of the war. Of the minor parties, the Socialists and Communists, though opposed to the majority, may be classed as the extreme Left; and the two fascist parties, the National Socialists and the National Party, may be classed as belonging to the extreme Right.

The strength of the several Swedish parties in the country and in the Riksdag may be observed in the following tables:

Voting Strength of Swedish Parties

Party	1932		1936		1940	
	Votes	%	Votes	%	Votes	%
Major Parties						
Social Democratic	1,040,689	41.8	1,338,120	45.9	1,546,785	53.5
Agrarian	351,215	14.1	418,846	14.4	344,287	11.9
People's	293,299	11.8	376,170	12.9	344,149	11.9
Conservative	585,248	23.5	512,780	17.5	518,209	17.9
Minor Parties						
Socialist	132,564	5.3	127,833	4.4	18,432	.7
Communist	72,245	2.9	96,531	3.3	101,423	3.5
National Socialist	15,170	.6	20,503	.7	*	*
National	---	--	26,741	.9	*	*
Totals	2,490,430	100	2,917,524	100	2,889,137*	99.4*

*Official Swedish figures for 1940 give the total votes cast and the votes for the first six parties. The difference may be seen to be 15,852 or 0.6%. This difference is to be accounted for by several factors. Hence, it cannot properly be all allotted to the two fascist parties, whose vote, though not given in official figures, is described as "negligible".

Parliamentary Strength of Swedish Parties

Party	Second Chamber 1932		1936		1940		First Chamber* 1941	
	Seats	%	Seats	%	Seats	%	Seats	%
Major Parties								
Social Democratic	104	45.2	112	48.7	134	58.2	75	50.0
Agrarian	36	15.7	36	15.7	28	12.2	24	16.0
People's	24	10.4	27	11.7	23	10.0	15	10.0
Conservative	58	25.2	44	19.1	42	18.3	35	23.3
Minor Parties								
Socialist	6	2.6	6	2.6	--	--	--	--
Communist	2	.9	5	2.2	3	1.3	1	.7
National Socialist	--	--	--	--	--	--	--	--
National	--	--	--	--	--	--	--	--
Totals	230	100	230	100	230	100	150	100

*The First Chamber being partially renewed every year, the figures for only the most recent year are given.

b. Party Issues.

Though partisan issues are for the time being subordinated to the problem of maintaining the neutrality of Sweden, Right and Left are in normal times opposed in their views concerning the public interest and the terms in which it ought to be interpreted. The traditional issues of regime, army, and church have not been very acute in recent years. The issues have only the minor influence of historical association and of tendency. The Right is merely somewhat more strongly monarchical, somewhat more nationalist and favorable to defense, and somewhat more pro-church. Normally, questions of this kind are secondary to social and economic issues. The issue of socialism versus capitalism, though it does not assume a very virulent form, is the principal source of party division.

c. The Parties.

(1) The Social Democratic Party has a majority in

both Chambers of the Riksdag. Hence, although it recognizes the present importance of a coalition cabinet based on a party truce, it is entitled to form a wholly Social Democratic government. This situation is in marked contrast with the whole history of Parliamentary Government in Scandinavia and the rest of Continental Europe, where coalition majorities have been the rule. The Right in Sweden has been rendered somewhat defeatist politically, some of its leaders wondering whether the Social Democrats can ever be dislodged. The fact is that the Party, descended from a nineteenth century socialist movement under the great leadership of Branting, does possess great popularity, prestige, and strength. It is the champion of political, social, and economic democracy in a highly democratic country. It has the support of the lower economic classes, whose interests have been served by a well rounded system of labor legislation and social insurance. The Party is closely associated with the union labor movement, the union membership of some 1,000,000 furnishing a solid core of voters. Moreover, a large fraction of the active members of the cooperative movement are Social Democrats. Though the Party's principal strength is to be found in urban communities, it is supplemented by considerable support from agricultural laborers. The Party draws a stream of new active members from a League of Youth. The Social Democratic organization is admired for smooth and efficient working. Its leadership is of markedly high quality. A group of leaders of about fifty years of age are drawn from all elements in the Party. They are now at the height of their powers. Prime Minister Hansson is the outstanding political figure in Swedon. Other leaders, such as Wigforss in finance, are recognized experts in their fields. Sandler, the Social Democratic authority on foreign relations, was, after seven years as Minister of Foreign Affairs, dropped in 1939, reportedly through German pressure. The Party's foreign policy is scarcely controversial. In normal times, the League of Nations and collective security were strongly supported,

cooperation of the northern countries being especially favored. At present, the Social Democrats advocate, in common with the other parties, strict neutrality and strong defence. In domestic affairs, the Party, though socialist, is primarily a moderate, constitutional labor party of evolutionary tendencies. It is for "ultimate socialization but an immediate increase in the standard of life of the workers".

(2) The Agrarian Party is a non-socialist, progressive agrarian party. Organized in 1913, it steadily increased its popular vote up to the elections of 1940, at which time it suffered a set-back. A substantial number of its supporters (see tables) apparently transferred their votes in 1940 to the Social Democrats, with whom the Agrarian Party had been in alliance in recent years. The Party is too young to have been in the older individualist agrarian liberal tradition. It therefore accepts without great difficulty a certain amount of socialization. It favors protection in the interest of domestic agriculture; and, in more recent years, it has advocated measures, like credit subsidies for rural workers' housing, calculated to further the welfare of the small farmers and agricultural laborers. The Party has a strong dislike for the banks. It advocates reduction of farm taxation. Being a class party, it has derived its principal support from small and medium farmers and from agricultural workers. Party leaders include the present Minister of Agriculture, Pehrsson-Bramstorp, and Westman, Minister of Justice.

(3) The Conservative Party would, if conditions were normal, be the principal party of the opposition. It opposes socialization, direct taxation, and union domination of labor. However, it favors moderate protection for industry against foreign competition. The party is the strongest and most typical supporter of monarchy and church. It favors support for religious training of youth. Its principal leader, Professor Bagge, is Minister of Education and Ecclesiastical Affairs in the present coalition cabinet. It is the

party of the well-to-do; but denunciations of it as the party of big business and the banks must be read in the context of absence in Sweden of many great fortunes and estates. Supporters of the Party include important government officials, successful professional men, the few existing landowners, and most of the large farmers. Conservatives have the strongest women's section of any party in the country.

(4) The People's Party in Sweden is the typical traditional liberal agrarian party. Like many other liberal parties, it has, in spite of its earlier brilliant leadership in the long struggle for democratic constitutional reform, become conservative through failure to adapt itself to the needs of modern social and economic life. The Party, originally the Liberal Party, split in 1923 on the question of prohibition, an issue which is at present not a very important one. The reunited party opposes monopolies both private and governmental; it advocates private enterprise and small business; and it opposes protection, advocating encouragement of international trade. Its principal support comes from small business men, shopkeepers, minor officials, and small farmers. Two of its leaders, Andersson af Rasjön and Bergquist, are members of the present coalition government.

(5) Of the minor parties, only the Communists have seats (see tables) in the Riksdag. In spite of the relatively small strength of the Party, the German press has made much of the fact that Communists have a legalized party existence in Sweden. The Social Democrats refuse to be excited about the matter, asserting that the Communist Party cannot be abolished unless the National Socialist Party is destroyed at the same time. The Communists are affiliated with the Moscow International. The present "Socialist" Party was the original communist party in Sweden. Marked by Trotskyist tendencies, it left the Third International in 1929. Of the two fascist parties of the extreme Right, the National Party grew out of a secession from

the Conservative Party by its youth organization. Its leading figure is Rütger Essén, former pupil of Rudolf Kjellén, the student of geopolitik. Essén now has launched a Nazi daily, Dagsposten. There are several organizations of pro-Nazi youth. The National Socialist Party is inspired by the German Nazis. A Colonel Martin Ekström and a Hjalmar Furugaard have dreams of establishing themselves as führers. Of some importance is Svensk Socialistik Samling (SSS) led by Sven Olof Lindholm. It has sought, with no marked success, to establish cells of Bruna Gardet (Brown Guard) and of the Blå Marin (Blue Marine) within the army and navy, respectively. There is a Swedish-German Society whose concern formally is with culture as much as with politics. It includes various categories of Swedish Nazi sympathizers, especially some of academic rank -- such as Professors Karl Olivecrona and Fredrik Böök and the explorer, Sven Hedin.

Only these small fascist groupings are basically inimical toward the United States. The bulk of the people hope for Allied victory.

30. Foreign Policy and International Relations.

a. Changing U. S. Attitude Toward Sweden

The Swedish government is on friendly terms with the United States. There was a time after the invasion of Denmark and the war in Norway, when Sweden seemed hopelessly caught in the Axis orbit. Many in this country thought Sweden actively pro-Nazi. But as Sweden built up her armament, and increased her armed forces, she found herself able to take a firmer tone toward Germany, particularly after Russia entered the war, and the Nazi terror sought to wipe out opposition in Norway. On several occasions the Swedish government has given its word to the American government that it would not yield some particular point to the Axis, and no evidence has come to our government that it failed in its promise. As a result, the position of Sweden has come to be better appreciated.

b. Sweden's Attitude toward the United States.

The Social Democratic government in power at Stockholm in the thirties, naturally looked with approval or with sympathetic interest on many of the activities of our present administration. Moreover, the American President is admired for his outspoken denunciation of the totalitarian governments -- a luxury which the Swedish government is in no position to indulge, were it ever so much tempted to do so.

But the Swedish government cannot approve everything our government does. Like its people (see above, paragraph 19) it cannot look with unmixed approval upon the British and American alignment with Russia. Fear of Russia is the strongest and most persistent consideration in Swedish foreign policy. It accounts for the ever present concern over Finland, lest anything happen to weaken Finnish ability to hold back Russia from the northern Atlantic.

c. Sweden's Relations with Germany.

The relations with Germany, however, are the most important. Sweden's foreign trade is now in large part (about 70%)

confined to Germany. Through trade agreements Berlin has sought to force Sweden into line with the New Order, but negotiations last December over the agreement for 1942, indicated that Sweden was prepared to put up some resistance to German demands.

In the political sphere, Sweden has shown particular boldness in holding German demands within bounds. It appears indisputable that renewed German demands from the latter part of 1941, for permission to send troops across Sweden, have been refused. So too the Swedish government has made little effort (notwithstanding an occasional suppression of particular newspaper issues) to conceal the utter distaste most of its citizens have for the brutal Nazi methods in Norway. If it could have its way, the Swedish government (with most of its citizens), would prefer defeat or exhaustion for Germany and Russia, and victory for Finland, Britain, and the United States.

d. Sweden and Northern Unity.

The Swedish government, like its citizens, feels increasingly a duty to the ideals of Northern unity. Only Sweden is left to sustain those ideals -- Denmark is in custody, Norway is enslaved, and Finland faces seemingly unavertable tragedy. Several members of the Swedish government, notably the Foreign Minister and the Minister of Defense, have spoken out in favor of that united North which they feel must emerge from the present debacle. In the rehabilitation of their Scandinavian neighbors, and the building of a new Northern unity, Swedish statesmen believe their country will have to play a decisive part.

Section V.

ECONOMIC

31. General

a. Contemporary Economic Scene

(1) Progress and Prosperity.

By the 1930's, Sweden had brought her economy to a high level of development. In part, she had accomplished this because she could supply world markets with two important raw materials--forest products and iron ore. She also enjoyed a preeminence in certain lines of precision manufacture, such as electrical (telephone) supplies, high-grade steel products, and light armaments (Bofors anti-aircraft guns).

In the field of shipping, Sweden had not developed the tonnage ratio of her neighbors Denmark and Norway. But she had a creditable merchant marine; and in one line, luxury travel, she was winning a solid clientele (the Kungsholm cruises). On land, the distinctive developments were the increasing electrification of many railway lines, and the rapid extension of bus lines into inland and remote areas of sparse population. The airplane was gaining importance as a means of getting about within the country, though the services offered to foreigh parts were still the most important. In the field of direct communication, the telephone and the radio were put into very extensive use.

(2) "The Middle Way".

One distinctive feature of the Swedish economy in the thirties was the balance that had been established between private capital, state ownership, state regulation, and the cooperative movement. The state was using its powers of regulation and ownership to modulate the excesses of private enterprise, aiming to eliminate private enterprise only where its activities seemed incorrigibly hostile to general welfare.

(3) Anticipating the Dislocations of War.

This policy was put to the supreme test in the second half of the thirties. In the midst of Swedish (and Scandinavian) prosperity, war clouds gathered lower over the European horizon. The Swedish government, began to prepare for the threatened catastrophe, hoping within the framework of a status of neutrality to save its people from the worst effects of war shortages and commercial dislocations. As early as 1936 there was authorized a State Reserve Supplies Board to buy up and store supplies, especially grains and fuels. Other agencies established (most of them since the outbreak of the war) are:

Munitions Board

State Industrial Commission

State Trade Commission

State Credit Board

State Board for Essential Supplies

State Wood Board

State Coal Board

State Gasoline and Oil Board

State Gas Generator Board

State Shipping Board

State War Risk Insurance Board

State Labor and Market Commission

Special Commission to Study the Domestic Price Level

Commission on Transportation

(4) Severity of the Dislocation.

War and blockades have subjected the internal economy to severe strain. They have restricted sharply the normal imports of food, fruit, colonial products, coal, steel, and various other semi-manufactured goods. They have likewise curtailed the exploitation of both the timber and iron ore resources, which are dependent on world markets. The industrial life of

the country can only be maintained through trading with whatever markets are available. A few ships a year are permitted to pass the blockade through safe-conduct permits from the belligerents. The bulk of Sweden's trade is with Germany. It is estimated that Germany supplied from 70 to 80 percent of Sweden's total imports in 1941.

b. Utilization of Natural Resources.

Sweden occupies an important position in the world economy by reason of its exports of manufactured products as well as raw materials. Large resources of rich iron ore, extensive forest tracts, and lively waterfalls which have been harnessed to produce electricity, constitute the economic basis of the industrial life of the country. Not mass production at low cost so much as a high degree of technical perfection gives importance to Sweden's manufactures. Swedish built ships, precision gauges, wood manufactures, vacuum cleaners, armaments, lighting equipment, and industrial arts products command a good price, and a high degree of respect in the world markets.

(1) Agricultural

Swedish agricultural production is not adequate to the needs of the nation. While Sweden is the fourth largest country in Europe, only a little over 10% of the total area of 101,373,130 acres is arable. In the south, the cultivated land, which is farmed intensively, comprises over 71% of the total area, while in the far north it is only .7%. The farms are small as a rule--over 50% are less than 25 acres--and they are widely operated by owners. Electricity is widely distributed in rural areas.

Foreign markets in normal times supply about 10% of the grain consumed. A variety of fruits, colonial products, margarine oils, concentrated feed, oilseeds, and fertilizer are usually imported. The blockade has taken from American farmers

a 17 million dollar market for their products. In normal times Swedish agriculture produces a surplus of such things as live cattle, meat, and butter of which 6,019 head, 1,736 tons and 28,849 tons, respectively, were exported in 1939.

The livestock population was as follows in September 1940:

Sheep and lambs	329,297	Horses	617,057
Goats and kids	39,585	Oxen	6,031
Hogs	1,314,905	Bulls	37,635
Chickens	8,164,707	Cows	1,867,673
Beehives	162,113 (for year 1937)	Young cattle	558,846
		Calves	418,620

Because of the fodder shortage, cattle slaughter has increased 15%. There were 30% less hogs at the end of 1941 and the production of milk, butter, and cheese had dropped markedly. It is estimated that egg production also was 30% less in 1941 because of a decrease in the number of hens and inadequate feed.

A comparison of figures on grain production shows a similar trend since 1940:

	1940 production in 1000 bushels	1941 production in 1000 bushels
Wheat	15,459	12,493
Rye	10,468	11,062
Barley	8,694	7,211
Oats	64,562	53,455
Mixed Grain	21,960	19,713

(48 pounds to the bushel)

The 1941 bread-grain crop (wheat and rye) was officially estimated at 10% below 1940, and feed grains were down 15%. The acreage was generally increased, but the weather was unfavorable. The grain yield for 1942 may be more nearly adequate. Late rains in May improved the outlook this season.

1941, and by March, approximately 70% of the food supplies were rationed. Egg supplies were limited during the winter of 1942 to 7 or 8 per month, but by June more liberal purchases were permitted. After February, the daily bread rationed remained at 7-2/3 ounces per day. Meat supplies were short. By June, 1942, meat rations had been reduced to 5-2/3 ounces weekly. In a nation of coffee drinkers an allowance of only 8½ ounces for the entire summer of 1942, represented a drastic restriction if not a real hardship. The Swedish government has warned the people about the increasing food shortage, and has exhorted them to plant potatoes and vegetable gardens on vacant lots and lawns.

From this it is evident that an occupying force in Sweden would find little or no surplus food available. Sugar, bread, grains, and flour rations have been adequate for the needs of the people to the present--June 1942--, but meat products, pork, and egg consumption have fallen below normal. Summer vegetable production will provide a measure of relief. Much depends on the 1942 grain crop. Should this prove no better than that of the past two years, the food situation may become critical.

(2) Mineral

The growth of Swedish industry has been intimately connected with the development of water power, since Swedish coal resources are very insignificant. Imports of coal are required for heating, transportation, and for a few industrial plants. Coal imports total about 6 million tons a year. The development of water power resources has helped to make the nation independent of fuel supplies, but self-sufficiency has not yet been reached.

Sweden's mineral wealth springs primarily from its iron ore. The total resources are estimated at 2 billion tons. Moreover, the Swedish deposits are distinguished for their high metal content, which averages around 63%. Another way of

viewing the matter is to consider the country's reserves as an exporter. The ore supplies of the nation represent only 3% of the estimated world total, but are equivalent to 80% of it if account be taken of the iron content. About 90% of the iron ore is exported chiefly to Germany.

The deposits are found in three regions. The area of oldest production is the Bergslagen area of central Sweden. Here is mined ore of low phosphorous content which is chiefly used by the domestic iron industry. The most recently developed mines--and the least important--are in the Skellefteå region of Västerbotten.

The great ore region is found in Lapland at Kiruna and Gällivare. These mines are north of the Artic Circle and have undergone large scale exploitation only in the past 40 years. The mines could not be made profitable until electricity was made available to light the mines during the long Arctic nights. (They are chiefly surface mines). Model cities, thoroughly electrified, now house the workers, and state-owned electric railroads carry the ore to the Norwegian port of Narvik during the winter months, and also to Luleå in the Gulf of Bothnia during the ice free summer months. It is the ore from this region that is largely exported and that is so important to the German steel industry.

Total iron ore production in 1939 was 15,197,771 tons, and pig iron 709,830 tons. Exports for the year were 15,047,056 tons, an appreciable contribution to world trade. In 1940, 473,312 tons went through Narvik but by 1941 this had increased to 738,255 tons. The export to Germany in 1941 was 9,551,178 tons. The following table illustrates from what port and to what large markets iron ore was exported in the early months of the present war. Recent figures show that similar trends persist; in October 1941, 1,144,000 tons of Germany's Swedish ore import came through Baltic ports and only 105,000 tons via Narvik.

(584)

October, 1939.

From Narvik	227,486 tons
From other ports	1,083,888 tons
Amount to Germany from Narvik	16,286 tons
From other ports	1,016,663 tons
Total to Germany	1,032,949 tons
Amount to Great Britain from Narvik	117,363 tons
Other ports	6 tons
Total to Great Britain	117,369 tons

November, 1939.

From Narvik	248,577 tons
From other ports	948,487 tons
Amount to Germany from Narvik	75,383 tons
From other ports	871,022 tons
Total to Germany	946,405 tons

In all other metals, Sweden is either deficient or else has little more than enough for domestic requirements. There are considerable zinc ores at Ammeberg, and inexhaustible quantities of limestone and bituminous shale in south and middle Sweden. It is estimated that these shales will produce 6 to 8 per cent oil. A shale oil plant at Kinnekulle and another opened recently at Kvarntorp, have a capacity of more than 55,000 tons annually. Since the outbreak of the war, strenuous efforts have been made to utilize fully domestic resources. This has resulted in the re-opening of long abandoned mines or the opening of new ones which, under normal conditions, would not be economically profitable.

Some copper is mined but imports greatly exceed exports. In a single year consumption was 49,603 tons and production only some 25,000 tons. Most of this is accounted for by the Boliden Company which works the State-owned deposits at Adak in Västerbotten province. The deposits here are larger than previously estimated, and measures are being considered to expand production to 50,000 tons a year.

The ores in the Boliden area are diversified in content, the principal ingredients being sulphur, copper, arsenic, gold and silver. The sulphur and arsenic by-products were long a problem; they were produced in quantity and there was no appreciable demand for them. Now they are disposed of in large part at the island of

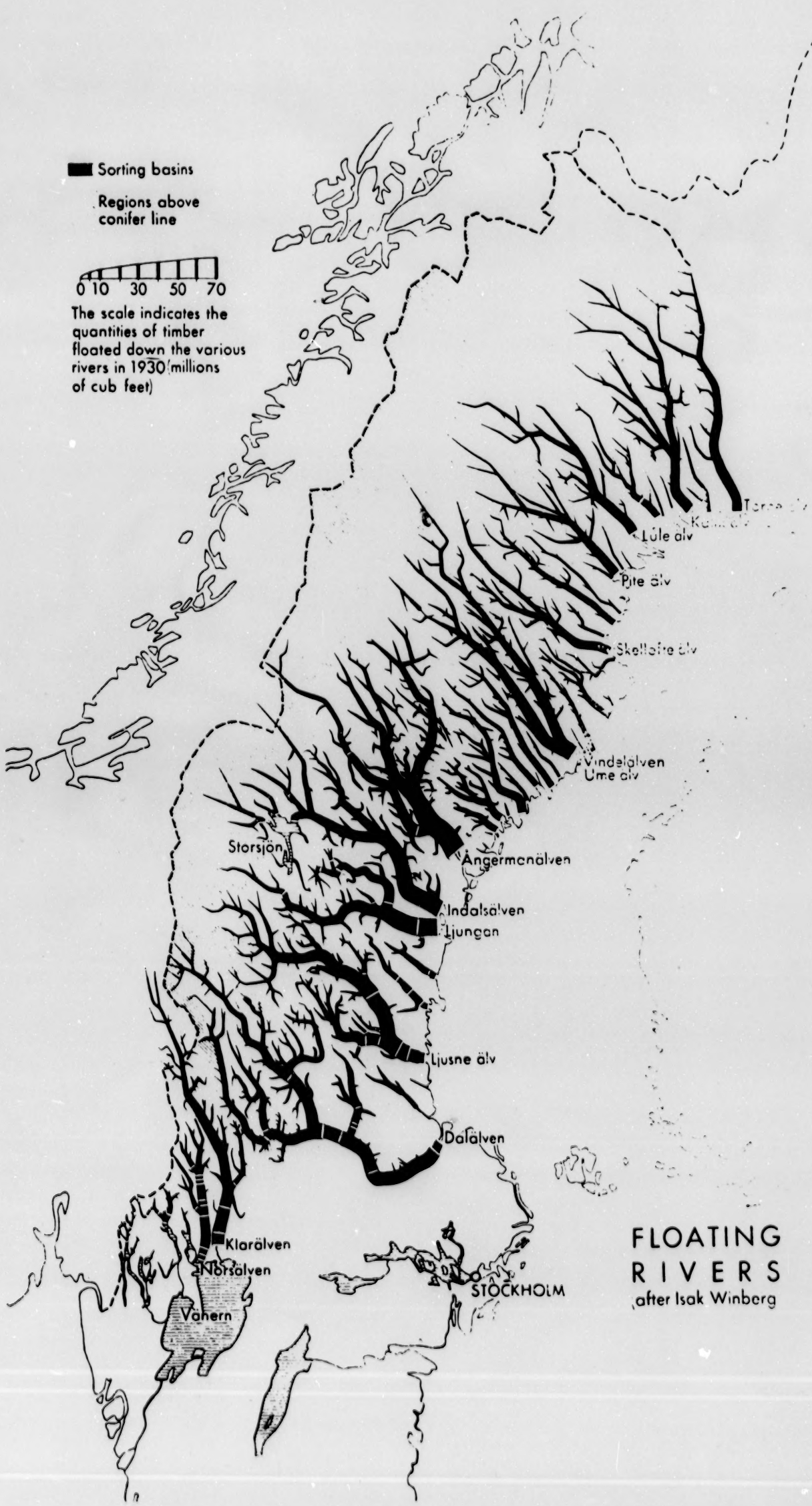
Rönnskär, just at the mouth of the Skellefte River. A new factory seeks to utilize the sulphur waste. The arsenic is stored for future possible demand. The yield at Boliden is more than enough to supply the entire world. Storage facilities at Rönnskär are capable of eventually holding 250,000 tons, and constituted, prior to the war at any rate, "the world's largest store of poison".

Domestic production, together with imports from Norway and Switzerland, kept Swedish aluminum stocks rather constant during the first six months of 1941. The state will aid in the construction of a factory for the extraction of aluminum from andalusite (a by-product of the Boliden gold plant). Plans are underway to mine Molybdenum from the deposits at Lillhärad.

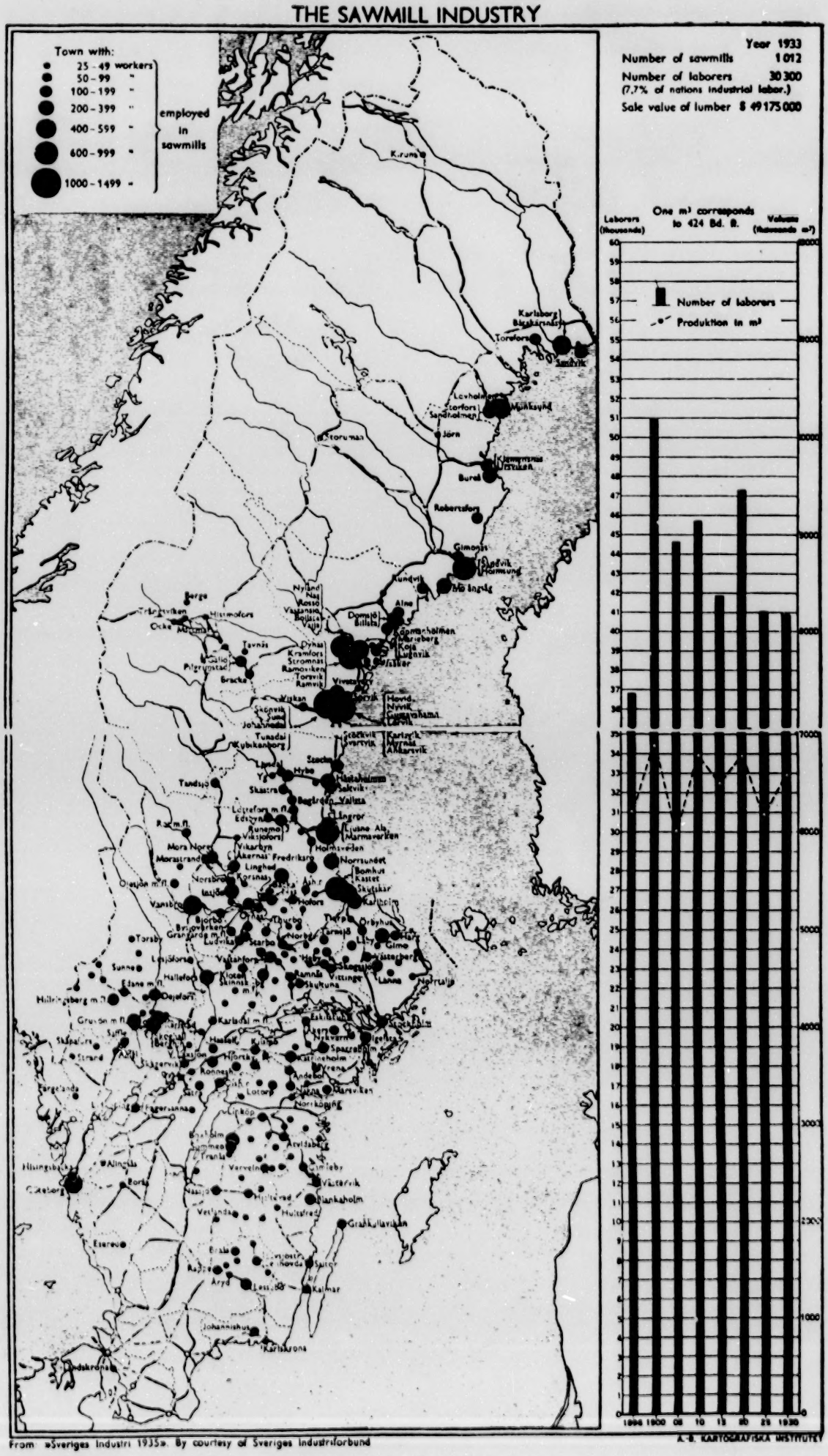
Swedish cement production is normally adequate for domestic needs. In 1939, over 1 million tons were produced and 37,133 tons were exported. By 1941, the coal shortage had forced the production of a substitute that required less fuel in its manufacture, but it was rated the equivalent only of Class B Portland cement. Old stocks had been requisitioned for military and other essential uses. For a time its export was forbidden, but the embargo was lifted early in 1942.

(3) Forest Industries

Sweden's timber resources are plentiful and constitute one of the great natural resources of the country. There are nearly 60 million acres of forest ground, chiefly in the central 2/3 of the country. No less than 18,409,354 acres of this was public forest in 1939. In the production of wood pulp alone, Sweden ranks next to the United States and Canada. Paper and pulp exports totalled 601,184 tons in 1939. During the same year, 3,457,946 tons of wood pulp and 900,588 tons of paper were produced. Timber products in export usually take the form of sawn or planed goods. All forms of sawn timber totalled nearly 8 million cubic yards in 1939. The following table of the lumber, woodpulp and paper industry shows production for an average year (1936).

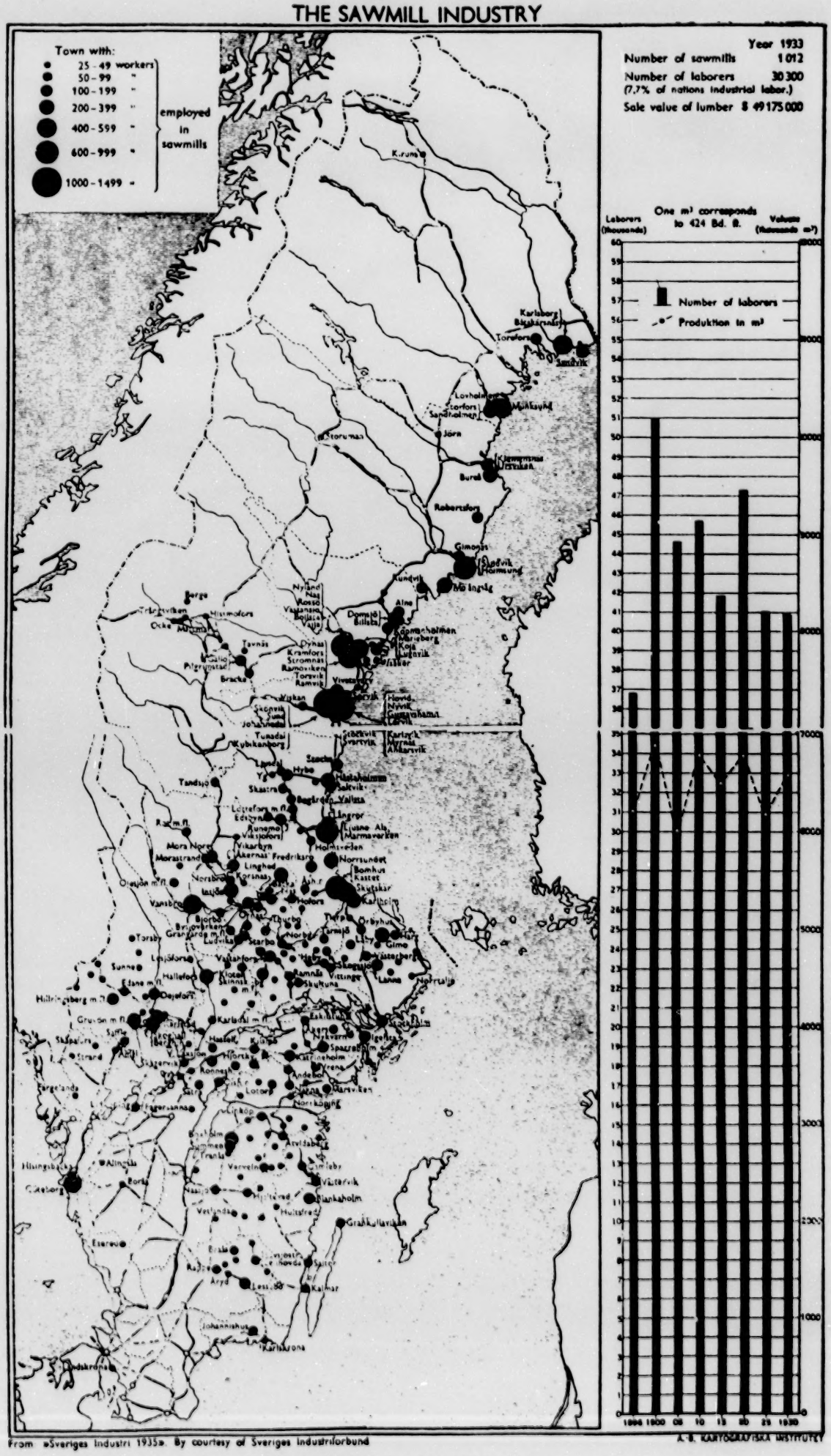

Sorting basins
Regions above conifer line
0 10 30 50 70
The scale indicates the quantities of timber floated down the various rivers in 1930 (millions of cub feet)
Lule alv
Pite alv
Skellefte alv
Vindelälven
Ume alv
Storsjön
Ångermanälven
Indalsälven
Ljungan
Ljusne älv
Dalälven
Klarälven
Norsälven
Vänern
STOCKHOLM
FLOATING RIVERS
after Isak Winberg

THE SAWMILL INDUSTRY



Location of the Sawmill Industry.

THE SAWMILL INDUSTRY

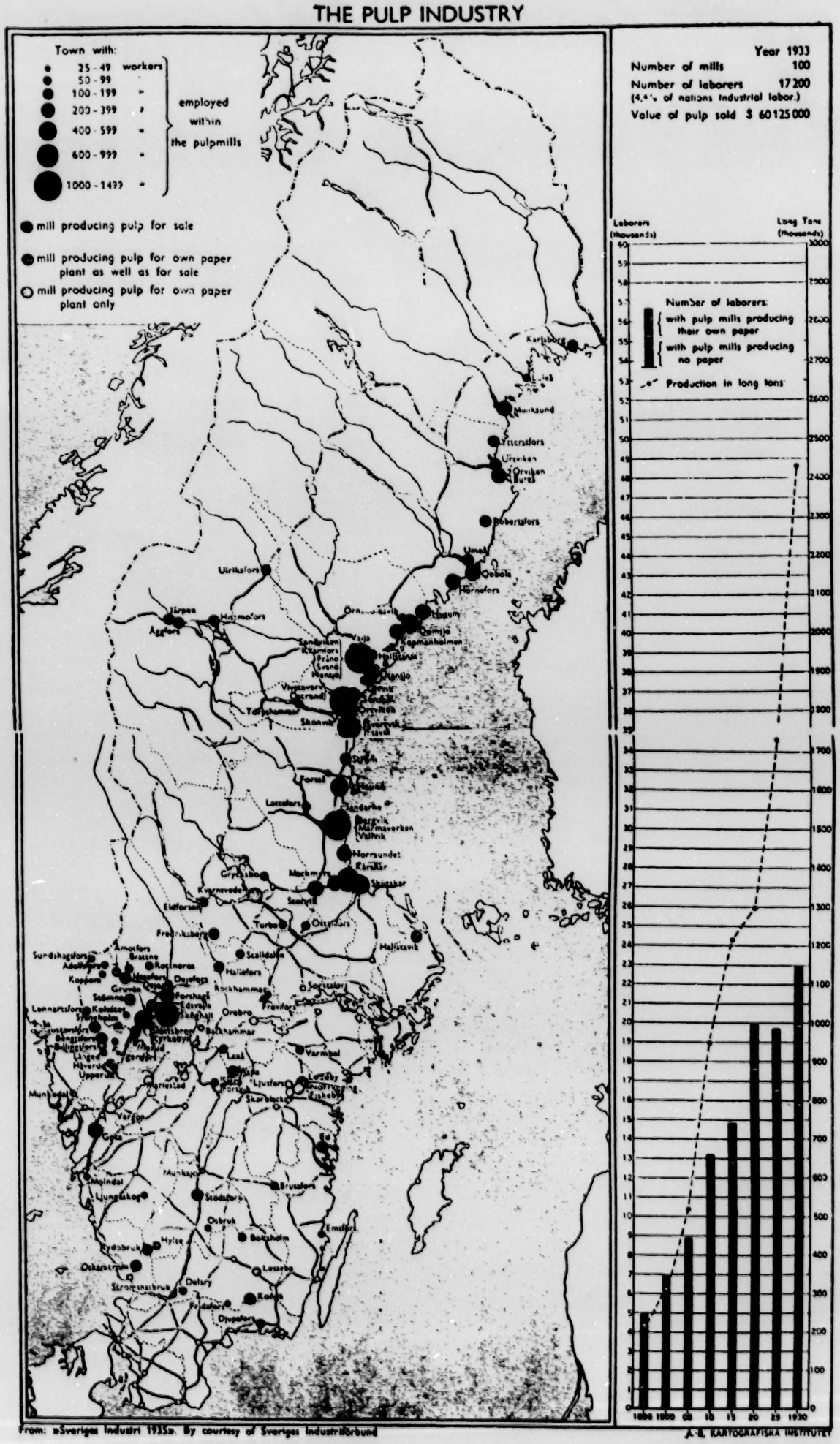


From »Sveriges Industri 1935». By courtesy of Sveriges Industriforbund

A.-B. KARTOGRAFISKA INSTITUTET

Location of the Sawmill Industry.

THE PULP INDUSTRY



From: »Sveriges Industri 1935». By courtesy of Sveriges Industriförbund

A.-B. KARTOGRAFISKA INSTITUTET

Location of the Pulp Industry.

Lumber	2,420,000,000bd.ft.
Chemical pulp	2,761,000 tons
Mechanical pulp	744,000 tons
Paper and cardboard	987,000 tons

During the same year, there were in operation 1,516 sawmills, 94 pulpmills, and 76 paper mills employing no less than 70,700 workers. (See appendix for further details). Nearly 3/4 of the lumber and pulp is produced in the provinces of Norrland, Dalarne and Varmland, while the paper mills are concentrated in the central and southern parts of the country where the ports do not freeze over in winter.

The average size of sawlogs is only 16 feet in length and 8 inches at the small end. Nearly half of the lumber cut is less than 6 inches wide while only about 15% is more than 8 inches in width. Pine and spruce are the trees of major importance in the lumber industry, with the former making up about 2/3 of the lumber production and the latter going largely to the pulp industry.

In the present war, the forests of Sweden have played an important role in maintaining the internal economy. Wood has been used for animal fodder, lubricants, clothes, locomotive power, and fuel in general. Nearly 72 million cubic yards of wood will be required for the year ending July 1, 1943. Automobile traffic in Sweden today is largely dependent upon wood fuel for power. Exports have been maintained to a degree through trade agreements with Germany, Denmark, Italy, and other European countries. Germany alone made provisions for the purchase of 85,000 standards of sawn lumber during the last months of 1941, Sweden supplied Germany with about 1/3 of her timber imports in 1941, or nearly 678 million board feet, and The Netherlands took large deliveries of spruce. Total lumber exports during 1941 were 460,000 standards, or 40,000 less than the previous year. The downward trend in lumber and wood products production was partly responsible for the general slump in industrial production during 1941.

(4) Fisheries

Sweden has a long indented coastline which provides good facilities for a fishing fleet. During peace times the Swedish fishing industry is not of major importance, but the present food

shortage has greatly increased its value. The total salt water fish catch in 1939 was 146,739 tons valued at $7,830,480. Fish exports of all kinds totalled 40,108 tons in 1939, while imports were 59,641. No less than 20,378 boats and 34,139 workers were engaged in the fishing industry in 1936.

The salt water fisheries are the most important. The chief fish caught are herring, eel, haddock, cod, plaice, and witch. The fresh-water fisheries are centered in the large lakes and rivers from which are taken pike, perch, pike-perch, whitefish, bream, eel, char, crawfish. The rivers yield salmon and trout.

During the food shortage of 1941-42, Sweden gave more attention to the development of her fishery resources. A cooperatively owned concern at Karlshamn began to produce oil from surplus fish and fish refuse. The present daily output of oil is 2204 pounds a day, the better qualities of which are hardened and used as raw material in the manufacture of margarine. During March, 1942, fish prices were fixed in an effort to provide a greater incentive to fishermen to increase their catch. Whether or not this was the responsible factor is uncertain, but the fish catch reported in June, 1942 was substantially above that of the previous year. The herring catch alone totalled 31,416 ton. None of this was to be exported, and over 6,000 tons were salted down for the future. Huge catches of mackerel were also reported.

32. Manufacturing.

a. Size of Industrial Production.

Only Great Britain, the United States, Germany and Belgium are comparatively more industrialized than is Sweden, 40% of whose population is engaged in industry. In 1939 the industrial production in all lines was valued at $1,956,494,405. Lumber and forestry products bulked large in this production, but the ore reduction and metals industries led the list with a total value of $677,174,411 (See Appendix for details). Important also were certain lines of highly skilled manufactures.

b. Distribution of Industry.

The industries of the country are not concentrated in congested localities. Diversification -- due partly to elaborately developed inland water transportation and extensive electric power resources -- has prevented urban congestion and many of its problems. Industrial plants are, however, more numerous in the south and central regions than in the north. Moreover, certain localities are associated with the production of particular articles. Jönköping is noted for its match production. Eskilstuna has been called the Sheffield of Sweden. The Bergslagen district has long been famous for the high quality of its iron manufactures.

c. Dependence On Raw Materials.

Some industries owe their development, not to the domestic resources, but to imports of needed raw materials. The shipbuilding yards, for example, must import some construction steel. Dependent on foreign supplies, for at least part of their raw materials, are the makers of textiles, certain foods, metal goods, machinery and vehicles. (See Appendix on domestic automobile production).

d. International Renown of Swedish Industries.

Swedish manufactures have won international recognition in such lines as high grade iron and steel products, lighting and signalling apparatuses (the A.G.A. gas accumulators operate

unattended a year at a time in lighthouses found all over the world), internal combustion motors, and telegraph and telephone equipment. The L. M. Ericcson Company, building on the pioneering work of its founder, is manufacturing a wide range of telephone equipment. It owns 15 factories in 12 countries. The Johansson precision gauges are ranked high by technicians and by scientists. The name of De Laval is familiar to any North Dakota farmer, even if he does not use a cream separator of that make. The four-stroke crude oil engine has been a Swedish specialty; the Atlas Diesel Corporation of Stockholm has been counted one of the oldest and best manufacturers of Diesel engines. Forty associated companies in as many countries represent the roller bearing manufactures of Aktiebolaget Svenska Kullagerfabriken (SKF). Widely known too are the stainless steel products of Avesta Jernverks Aktiebolag.

e. Electrical Manufactures.

The rapid development of hydro-electric power naturally encouraged experimentation in the electro-technical field. Swedish industry has pioneered in the perfection of water turbines, and has kept abreast of developments in the manufacturing of generators, motors and transformers, and of electrical equipment generally. The Allmänna Svenska Elektriska Aktiebolaget (ASEA) at Västerås, the oldest electrical firm in Northern Europe, makes nearly everything in the electrical line. It has supplied much of the equipment for electrification of Swedish railroads, and has built some of the world's largest generators. The electric cable and wire industry knows well the products of the Sievert Cable Works at Sundbyberg.

f. The Bofors Armament Works.

The Bofors works (Aktiebolaget Bofors) in central Sweden (near Karlskoga) are the most important iron and steel works of the country. They produce a variety of products -- frames, axles, crank shafts for automobiles, plates for rock crushers, gun steel propellers for ice-breakers etc. But to the man in the street, Bofors

means only one specialty -- that of armament and munitions of war. The firm specializes on such ordnance as armor plate to a thickness of 15 cm., projectiles of 38 cm., and artillery from 20 mm. to 30 cm. Especially effective in recent years has been its anti-aircraft artillery, especially a 40 mm. and, more recently, a 20 mm. gun.

The Bofors plant is located in the midst of good iron ore and charcoal resources. It owns enough of these resources for its own needs and also the railway lines that serve them. One of its subsidiaries located not far away at Björnborn, is Nobelkrut, which specializes on explosives and related products. (It was Alfred Nobel who, in the middle nineties, first brought the explosives industry and Bofors together). A subsidiary at Trollhättan, specializes in the 20 mm. anti-aircraft gun; another plant at Tidaholm, which has built trucks and frames, is supplying artillery carriages. (See Appendix for the names of several other firms producing munitions).

For a time after the World War, the Krupps were much interested in Bofors. But in 1935 the Swedish government took steps to eliminate the Krupp influence. Now the Swedish army and the Swedish navy each maintain a permanent control commission at the factory to watch their interests. In normal times Bofors markets its wares in many countries, particularly in Norway, Denmark, Finland, The Netherlands, Turkey, Thailand and Argentina. Foreign markets used to take 85% of its production. But a system of export licences restricted its operations in recent years, and now the Swedish government absorbs all its production. There is no evidence that any finished munitions are going from Sweden to Germany.

g. The Shipbuilding Industry.

Another important Swedish industry is shipbuilding. The Swedish yards are building modern vessels, powered by crude oil motors, especially Diesel engines. In 1939, 143 ship and boat building yards employed 16,204 workers. (See Appendix). At the end of

1941 there were under construction over 516,000 gross tons. Most of them were being built for Swedish contract. 194,000 tons were intended for Norwegian service, while only 43,500 tons were for German purposes.

(1) The Götaverken yards.

The largest and best known shipbuilding firm is Götaverken Aktiebolaget at Göteborg. In 1939 it employed 5,000 workers and put down the ways 14 motor driven vessels representing a total of 101,500 gross tons. In 1941 there were under construction 20 other motor driven ships, with an indicated total horsepower of 200,000. This firm constructs also naval craft for the government. It has built coast defense ships, destroyers (the Göteborg, launched in 1936, has a speed of 40 knots) and an airplane cruiser (The Gotland). In 1941-42 the Kockum Shipbuilding Yards (Malmö) and the Karlskrona Navy Yard delivered a submarine each to the Swedish Navy.

(2) Dependence on German Materials.

Orders for the Swedish yards are plentiful but the rate of production now lags some. In 1939, 220,000 gross tons were launched, but the figures in 1940 and 1941 were 155,000 and 166,000. The reason is a shortage of materials, especially construction steel and steel plates, which Germany is supposed to supply. The government has sought to encourage the domestic production of such articles as anchors and chains. Germany was to deliver 50,000 tons of ship plates and other materials annually, from 1941 to 1944, for which Sweden was to pay 20,000 tons a year of completed ships. It is now predicted that because German deliveries of materials are slow, none of the ships will be completed before the end of 1942.

Domestic production of iron and steel for 1942 is estimated at 936,964 tons, the entire amount of which will be needed for Swedish industry. Recent reports suggest that Germany is meeting her agreed quota of constructional steel, but Swedish supplies are still 20,000 tons short.

33. Utilities.

a. Power Plants and Production of Electricity.

(1) Power Resources.

Since coal and oil resources in Sweden are meager or non-existent, the water power of the country has been harnessed to produce electricity in large quantity. Water power is plentiful in Sweden. (See map in appendix). A comprehensive survey some years ago concluded that when fully developed, Sweden's water power resources might have a capacity of 6,500,000 kw., which would yield 32,500,000,000 kwh. a year.

But to date only about one-fourth of the power resources have been developed. In 1936, the capacity was about 1,600,000 kw., producing some 7,000,000,000 kwh. of power. Some 400,000,000 kwh. were produced in addition by steam. In 1939, production of electricity rose to 9,054,000,000 kwh. From 90 to 95% of the production is by water power.

(2) The Swedish System.

Power production and distribution in Sweden has developed into a unique arrangement called "the Swedish system". Its distinguishing feature is the network of relationships established between producers of electric power, on the one hand--the State, private companies, and municipalities--and on the other, the agencies that handle the distribution of the power. The important agencies in distribution are the cooperatives and the municipalities. These generally establish their own distribution lines and physical equipment. Through "the Swedish System", electricity is made available to nearly every region of the country; dark, non-electrified patches are found only in a few undeveloped sections in south and central Sweden, and in some communities in the far north. (See appendix for a list of power plants).

(3) State and Private Plants.

The state is heavily engaged in power production. In

1940, 2,844,900 kwh., or 1/3 of the power produced was generated in its plants. Their installed generator capacity was 633,000 kwh. (See appendix for the capacity of state owned plants). Two important state plants are Trollhättan on the Göta River and Älvkarleby on the Dal River (Dalelven). The state also owns large power resources in the Lule River area in the North. The great ore fields of Lapland--at Kiruna and Malmberget--owe their development to the complete electrification of the region, which permits their continuous operation through the long darkness of the Arctic Winter.

In general, the resources of northern and central Sweden have been developed by the state, and those in the South by private companies. Yet such a distinction is not clear cut; the large Sydsvenska Kraft Aktiebolaget, though a private corporation in form, is owned largely by six municipalities in southern Sweden. The city of Stockholm owns several power stations of its own. In addition, it is a large shareholder in Krångede Aktiebolaget, a company which in 1936 put into operation a large power plant on the Indal River.

(4) Administration

The administration of the state's power system is in the hands of the Power Department of the Royal Board of Waterfalls (Kungliga Vattenfallsstyrelsen). The latter, established in 1909, is composed of a Director General and four additional members. The Board is responsible to the Ministry of Communications. The Director-General of the Royal Board, at latest reports (1939), was Waldemar Borgquist. The Chief Director of the Power Department was Karl-Gustaf Ljungdahl.

(5) The Three "Blocks"

The state's power system is divided into electrical districts, and these in turn are grouped into three blocks--the

Central Block, in the lake region and the south, the Norrfors Block along the middle Bothnian coast, and the Porjus Block, in the far north. By means of long transmission lines, the extensive power resources of Norrland are becoming available to the heavy power consuming regions of central and southern Sweden, where the power resources have been developed about to their maximum.

(6) Voltage on Main Lines.

Power is transmitted by main trunk lines and by primary lines to transformer stations where the voltage is stepped down to more practicable proportions. As a rule the State trunk lines carry a voltage of 132,000, though a line from Trollhättan to Västerås was built to carry 220,000 volts but has never been loaded beyond the average. Primary lines from the Porjus, Älvkarleby, Motala, and Västerås power plants carry 77,000 volts, from Trollhättan 55,000 volts, and from Norrfors-Sillre and Älvkarleby-Hedemora 44,000 volts. The transformer stations are called trunk line stations if connected with the trunk lines and secondary stations if connected with the primary lines. For large consumers near power lines, the current is usually stepped down to 6,600 volts. The lines radiating from these transformer stations are generally called secondary or rural lines and carry 22,000 volts. A degree of variation exists in that a few of the old secondary lines carry 11,000 volts, and in exceptional cases 33,000. In only a few instances are large consumers connected directly with primary lines of 44,000 voltage. In the rural districts of the Central Block, the transformer stations are called tertiary stations and here the tension is reduced from 20,000 to 3,300 volts. (See appendix for distribution details on State lines).

(7) Rural Electrification.

Sweden ranks high in rural electrification. It is estimated that 65% of the farms on arable land were electrified by 1935 and in the more densely populated regions the percentage ran from 70 to 80%. More than a thousand hydraulic plants, chiefly in the forest and mountain regions, supply the power. It is to be recalled that a number of industrial firms in the inner areas (especially Värmland) produce more current than needed for their purposes and sell the surplus to distributors and consumers.

(8) Industrial Use of Power.

Electric power is vital to the continued functioning of Swedish industry. With the exception of wood, all other forms of fuel for power must be imported. Of the total electrical production of nearly 10 billion kwh. yearly, 80% goes to industry, 5% for traction, and 15% for street lighting, domestic, agricultural, and commercial uses.

(9) Shortages and Reserves.

During the winter of 1941-42, hydro-electric power was severely cut because of the water shortage. Normally, there is no problem because the water supply is high in the northern regions during the summer and adequate in the south during the winter. A large steam plant at Västerås is designed to act as a reserve during periods of stress. Additional security is provided by an arrangement with Denmark whereby there is an exchange of power by submarine cables between Zealand and South Sweden, when conditions in either locality seem to warrant it. On balance, the interchange results in a net export from Sweden.

b. Ice Making and Cold Storage Plants

Ice making is of limited importance in Sweden. Most of the country lies between 56 and 68 degrees north latitude. The country is studded with lakes and rivers from which unlimited supplies of natural ice can be secured. Freezing temperatures are prolonged everywhere during the winter months.

Nevertheless, refrigerators and ice boxes are quite widely used. Production of cooling machines and equipment reached a value of almost 3.5 million dollars in 1939. The Electrolux equipment, a Swedish contribution, has the advantage of not being dependent on electric power. Information on ice making plants and cold storage facilities is very limited. The following table indicates known facilities in 1938.

City	Name of Concern	General Statement
Götoborg	A./B. Svenska Fryserierna	Owners of refrigerating and ice-making plant, and cold storage warehouses. Rated as large.
Norrköping	City Cooling and Freezing House	Freezing works belonging to the city.
Norrköping	Norrköping Slaughter House	Freezing works at the public slaughter house.
Stockholm	Stockholm Freeport	Freezing works owned by the city of Stockholm. Cold storage of meats and fresh fruits.
Enskede (near Stockholm	----------	Freezing works for the cold storage of meats.

c. Water Supply

The water supply system is by and large adequate for the cities of Sweden, but it is hardly satisfactory for the municipal districts (municipal-samhälle) and villages (köpingar). 33% of the villages, 59% of the municipal districts, and 95% of the cities have public water systems. Of 116 cities only 5 were without a public system in 1938--Skönringe, Skanör, Falsterbo, Marstrand, Tidaholm, and Huskvarna, though the last named was planning the construction of a system. It is the cities in the southern provinces which are most delinquent in this matter, particularly those in Kristianstad and Malmöhus.

The source of water varies. Of 111 cities with water systems, 34 used surface water, 54 used deep borings, and 23

employed both. In the municipal districts and villages, the corresponding sources in terms of percentages were 31%, 55% and 14%. Purification procedures need to be extended. Regular biological analyses of surface water were carried out in only 40 of the 57 cities dependent on it, in only 3 of the 9 municipal districts, and in only 13 of the 33 villages. The largest town using surface water without purification was Uppsala. In the case of water from deep borings, the substances to be eliminated are iron, manganese, and carbonic acid gas.

The water supply of Göteborg is taken from the Göta River. The flow of the river is dependent upon the use of hydro-electric power at Lilla Edet station. It is treated with chlorine, lime, etc. Stockholm gets its supply from Lake Mälaren. There is an old water plant at Norsborg and a new one at Lovö. At the old plant, purification is by lime and slow sand filtration; at the new one, alum, chlorine, and lime are used.

d. Gas Production.

Because attention has been centered on hydro-electric development, gas production in Sweden has not reached significant proportions. Only 37 towns and cities were listed as having gas producing units in 1936. (See appendix). The total produced during the same year was 6,793,600,000 cubic feet. In 1934, gas mains operating at consumer pressure totalled 1308 miles, and high pressure lines amounted to 66 miles. The supply was derived almost entirely from the carbonization of coal as Sweden possesses no natural gas resources. Gas manufacturing equipment has been undergoing a change; chamber ovens are replacing retorts, the chief reason given being the increasing demand for coke. In remoter areas, bottled gas has been introduced and well received.

Municipal ownership is the rule; no less than 29 of the 37 works mentioned are owned by the towns. Gas consumption has been steadily increasing, and the gas utilities carry on an active publicity in their own behalf.

e. Sanitary Installations

It has proven difficult to get satisfactory material on hygiene and sanitation. All the major cities in Sweden, of course, have sewage disposal systems. Though slums as such are almost unknown in the Swedish cities many individual houses are still very inadequately furnished. A survey in 1935 in 14 provincial towns showed that 2/3 of all apartments of less than two rooms and a kitchen were without separate toilets; i.e., two or more families had to share these facilities.

Facilities in the way of public baths are prevalent in towns but the rural areas have been less generously endowed. Warm baths are established frequently in connection with factories, breweries, creameries, and railway stations. The provinces that have been most interested in promoting bathing facilities are: Malmöhus, Kopparberg, Gävleborg and Norrbotten. A Swedish Public Baths Association and the Swedish Gymnastics Federation have helped to improve the public baths. The state also has been subsidizing them since 1920. By the end of 1937, 590 baths had received grants totalling $288,000.

34. Railroads.

a. General.

Sweden is a long, narrow country, parts of which are sparsely inhabited. To bring raw materials to industries, food to the people, exports to and imports from the harbors to a country where distances are great, calls for an efficient railway system. The Swedish railroad network fulfills both peacetime and military needs.

b. Northern Network.

The important main-trunk lines may be described briefly, beginning in the north. The Luleå-Narvik line, important because it taps the rich iron ore mines at Kiruna and Gällivare, is completely electrified. From the far north two lines run roughly parallel until they connect with the central rail system at Bräcke. Of these two, the Bräcke-Boden line - now completely electrified - skirts the coast, while the Gällivare-Östersund line runs at a distance inland at the foot of the western mountains. The latter was built largely for strategic reasons, but also to help develop some of the backward regions. From Sundsvall another main line runs west to Storlien on the Norwegian border, and thence on to Trondheim. Between the main routes mentioned are several shorter penetration lines. (See map in Appendix). This northern rail network is connected with the central and southern system by a coast line from Sundsvall to Gävle, and by an interior line from Bräcke to Storvik.

c. Central and southern network.

Central and southern Sweden are the centers of industry and population. Here the rail network is more dense than farther north, and it transports far more freight and passengers. Stockholm is the radiating point for a semicircle of lines; Malmö, Göteborg, and Charlottenberg are the important termini. The main North-South lines run from Gävle to Stockholm, from Storvik to Malmö via Mjölby, and from Storvik to Trälleborg via Göteborg and Malmö. The most important East-West lines are those connecting Stockholm with

Charlottenborg and Stockholm with Göteborg. (See Appendix for detailed description of bridges and tunnels, distances, electrification, and gauge).

d. State and private roads.

By 1940, Sweden had 10,321 miles of railroad of which 2,758 miles were electrified. Ownership was divided between private companies and the State with the main trunk lines in possession of the latter. The branch and cross country lines in central and south Sweden are largely owned by private concerns. Government railroads are standard gauge with the exception of a short stretch of 12 miles. (See Appendix). No less than 89 different companies own the private railroads of which 46 are standard gauge and 43 are narrow. Municipalities frequently hold a considerable share of the stocks in these roads.

During 1939, the last normal year, the State railroads carried 25,840,053 tons of freight and 37,162,170 passengers. Private roads did nearly as well with 24,425,764 tons of freight, and even better with 50,533,320 passengers. (See Appendix for further details).

e. Electrification.

Approximately 30 per cent of the entire railroad system is electrified. The shortage of coal, lack of oil deposits, and abundance of water power has been largely responsible for this trend. By February, 1942, the government railroads operated 2636 miles of electrified line. During the same month a 266 mile stretch was changed to operate by electric power, between Långsele and Boden. There is now a complete electrified rail service running the length of the country from Trälleborg, at the southern tip of Sweden to Riksgränsen north of the Arctic Circle on the Swedish-Norwegian border.

This is the longest continuous electrical rail line in the world - 1,252.4 miles. Its northern portion, with an extension at each end, forms the famous Luleå-Narvik iron ore line, also electrified throughout. Power is chiefly derived from the Porjus hydro-electric station just southwest of Gallivare on the inland rail line.

Electric consumption for all Swedish railroads totalled 606,939,000 kwh. in 1939. During the same year 662,089 tons of coal were consumed but this has probably been reduced during the war because of the shortage of coal and the substitution of wood. The current employed by the government roads is 16,000 volts, a/c monophase, 16 2/3 cycle (transformed from triple phase, 50 cycle). The only exception is the iron ore line (Luleå-Norwegian border) which is 16,000 volts a/c monophase, 15 cycle. Trolley contact is exclusively employed. Private roads use mostly a/c current, though this varies.

NOTE: Because of the difficulty of accurate conversions, the following figures are left in metric units with an approximation of the English equivalent following.

f. Roadbed and Speeds.

Rail weight on the State railroads is 42.3 kgs. per meter (3.28 ft.) and those laid since 1936 are 20 m. (65.61 ft.) in length as compared with the 15 m. (49.21 ft.) length previously used. These heavier rails are referred to as the 1924 model and are now found on the following lines: Stockholm-Göteborg, Stockholm-Malmö, Stockholm-Uppsala, and Göteborg-Arlöv. Old rails are frequently reconditioned, welded into greater lengths, and relaid on the less important lines. Cross-ties are of pine, 2.5 to 2.7 meters (7-8 ft.) in length and are laid 32-33 per 20 meter (65.61 ft.) rail on the trunk lines, and 19-20 per 15 meter (49.21 ft.) rail on the other lines. There is no uniformity in either the length or weight of the rails on the private lines. Where the gauge is standard, a rail 20 meters (65.61 ft.) in length and weighing 45 kilograms (99.20 lbs.) per meter (3.28 ft.) is commonly used.

Train speeds are not exceptional though steps have been taken to improve roadbed and ballast so as to permit maximum speeds of 62 miles per hour. A record run set a speed of 65 miles per hour, but the average on the Stockholm-Göteborg line is 44 miles. Increased electrification and the use of more powerful traction equipment is designed to shorten train schedules.

35. Roads

a. Highway Network.

The highway system of Sweden is centered in the southern plains region where it serves the fertile farms, the large cities, and the major industries. One state highway has been extended along the East coast as far north as Haparanda. Other main trunk highways are: Stockholm along the East coast to Malmö; Stockholm to Göteborg with a branch to Hälsingborg; Stockholm directly across country to Oslo. From Oslo a trunk highway runs inland some distance to Goteborg from where it parallels the Kattegat coast and The Sound to Malmö. In general the highway system parallels the main railroad lines.

The country at large is served by a system of län (or county) highways. (see map in Appendix). Considering the generally rugged terrain, the highway network is well developed. At the end of 1940 there was a total of 54,707 miles of highway, or 1 mile of road for every 3.3 square miles of area.

b. Highway Supervision.

The maintenance, financing, and planning for new road construction are functions of the Royal Board of Highways and Waterways (Kungl. Väg-och Vattenbyggnadsstyrelsen). This Board is under the jurisdiction of the Ministry of Communications. Road maintenance work has been carried on also by the Special Labor Market Commission, an agency born of the depression, and designed to relieve unemployment. The highway system is both national and local in that the län, or county, plays a significant role in the maintenance and construction of the county roads. (See Appendix for list of firms carrying on highway construction)

c. Sources of Road Materials.

Because distances between populated areas are often great, the most common form of road surfacing has been, and remains, surface-treated gravel. This type has been even more widely used since the outbreak of the war because the asphalt imports, upon which

Sweden is almost entirely dependent, have been cut off. In times of peace, Germany, Great Britain, British West Indies, and the United States were the chief sources of asphalt imports in the order given. 4,689 tons were imported in 1939. Minor quantities are produced at the one oil refining plant which Sweden possesses. Crude petroleum imports have likewise been disrupted, though limited supplies may be secured from the continent. Cement production was adequate for internal needs until reduced coal and coke imports forced the industry almost to suspend operations. Existing stocks have been requisitioned by the government for military and other vital needs.

d. Mileage by surface type.

By the end of 1940 there were 36,588 miles of gravel-surfaced, macadamized roads, 15,630 miles of dust-free gravel surfaced macadamized, 1,325 miles semi-permanently surfaced, and 1,267 miles permanently surfaced. (See Appendix for further details) Calcium chloride was extensively used as a dust binder until the war cut off imports. Swedish-produced sulphite lye has been used as a substitute but has not proven satisfactory. However, new construction is apparently continuing, and extensive improvements are being made. The budget proposal for roads in 1941-42 totalled nearly 21 million dollars. (See Appendix for details)

e. Automobiles.

In 1939 Sweden had 248,854 automobiles of all kinds, and 110,262 motor cycles. By the end of 1940 the rubber and gasoline shortages had reduced the number listed in use to 81,334 and 29,520 respectively. (See Appendix for details) The others are undoubtedly still available and require only the proper supplies to be placed in operation. Sweden produces none of its motor fuel or oil, though there has been a degree of success in equipping cars with charcoal gas and wood gas burners. At the end of June, 1941 no less than 60,321 producer-gas vehicles were registered, of which 34,628 were trucks, 22,270 passenger cars, and 3,414 were buses.

f. Garage and Repair Facilities.

There is no information readily available on garage and repair facilities, but considering the number of automobiles, the mechanical mindedness of the Swedish people, and the degree of industrialization of the country it is reasonable to conclude that towns of reasonable size would be well equipped. (See Appendix for list of gas companies and total gas pumps) Over one half of the cars and trucks, and one third of the buses are of American manufacture.

g. Bus and Truck Lines.

(1) General

Sweden possesses a very extensive bus system that provides service to every major region in the country. It has been described as the best developed in the world, relatively speaking. In the northern regions the passenger and postal service which the buses provide, is particularly important because the railroads are unable to penetrate to every hamlet, and the distances are great.

(2) Operation in Northern Provinces.

In 1937 there were 3,637 authorized bus lines covering a total length of 69,593 miles. Of this number no less than 892 lines representing 26,953 miles were located in the four northern and sparsely settled provinces of Västernorrland, Jämtland, Västerbotten, and Norrbotten. It is evident that these regions are well served when fuel and tires are available.

(3) Railway Operated Bus Lines.

The State and private railroads also operate both bus and truck lines. (See Appendix) While competition has been keen it is now somewhat restricted by the fact that the agency in charge of State Railroads also possesses the authority to grant or refuse additional bus line concessions. The extent of bus travel is indicated by the fact that the State-owned lines alone travelled 8,825,806 miles in 1939. (See Appendix for further details) Mail-coach routes operating only in Upper Norrland carried 612,201.

passengers in 1936. Bus and rail traffic are closely connected as is evident from the fact that 3,433 bus lines, out of a total of 3,637, were affiliated with railroads in 1937. Lines operated by the post office and the railroads totalled 495 in number and operated over 9,321 miles during the same year.

(4) Effect of the War.

The war has drastically reduced automobile operations. Approximately 25% of the total vehicles in the country were in operation during the summer of 1941 in spite of the liquid fuel shortage. In June, 1940, bus operation in Stockholm was reported to have dropped 36 per cent. A number of the more important lines are kept in operation through the use of gas-producer units.

36. Shipping

a. Volume of Foreign Trade

Sweden's long coastline and the many deeply indented bays provide favorable conditions for the development of coastal and international shipping. It is the earnings of Sweden's merchant fleet that make it possible for the country to balance the excess of imports over exports. The volume of foreign trade per capita in 1935 reached $64.08 per capita for Sweden, as compared with $62.88 per capita for Great Britain.

b. The Merchant Fleet

The Swedish merchant fleet ranked tenth in the world in 1939, with 1,619,000 gross tons. This tonnage has been somewhat reduced by war action which by March 15, 1942, had taken toll of 116 vessels totalling 320,425 gross tons. Against this should be balanced 135,000 gross tons of new construction. Of the 48.6 million net register tons of shipping entering and leaving Swedish ports in 1939, about 36% or just over 17 million tons were carried in Swedish bottoms. About 80% of the larger ships in the merchant fleet (2,000 tons and over), which means about half of the tonnage of the merchant fleet, are today engaged in Allied service outside of the blockade. The following table indicates the total merchant fleet by type of vessel:

	1940		1941	
	Number	Gross Tons	Number	Gross Tons
Steamships	787	706,561	734	628,368
Motor Vessels	493	725,263	493	750,690
Sailing Vessels with auxiliary motors	915	84,655	889	82,772
Others	7	2,689	5	2,568

(It is estimated that about 50% of the fleet is over 20 years of age and considered obsolete.)

c. Ports

The import trade of the country is more concentrated in particular ports than is the export trade. Some 40 major ports on the coasts and the large Swedish lakes play the leading role.

(See Appendix for list of ports). In total shipping tonnage handled, the ports of Stockholm, Göteborg, Malmö, Hälsingborg and Trälleborg are of chief significance. By contrast, the export trade remains decentralized. The many good harbors formed by the mouths of rivers emptying into the Baltic have favored decentralization. Furthermore, the wealthy lumber, paper and pulp factories frequently have their own harbors, independent of neighboring city facilities. Iron ore exports tend to be concentrated at Narvik, Oxelösund and Luleå. The latter port suffers the disadvantage of being frozen over for long periods during the winter months.

The large ports of Stockholm, Göteborg and Malmö have actively encouraged shipping by extensive improvement work and the erection of Free Harbors. In 1939, these ports handled respectively, 11,574,000, 15,658,000 and 8,842,000 net tons of shipping. The growing importance of Hälsingborg is evident from the figure of 8,116,000 net tons of shipping during the same year. In general, Swedish ports are modern and well equipped. (See detailed list of ports and facilities in Appendix). In many instances even the small ports have one or two electric cranes, and frequently there are railroad tracks on the wharves. The high degree of railway electrification and the advanced state of rail facilities are partly responsible for this wide distribution of equipment. Many of the smaller ports north of Stockholm are blocked by ice during the winter, and interested groups have been demanding more government aid in procuring ice-breaking facilities. The major ports to the south are kept open for navigation the year round.

Shipping traffic from foreign countries decreased from 12,448,000 tons in 1940 to 11,592,000 tons in 1941. Direct outgoing traffic for the same years dropped from 12,826,000 to 12,679,000, respectively. This represents only a reduction of 6.3 per cent from 1940, but one of 52.6% by comparison with 1939. Swedish ships participated in this traffic to the extent of 41.2% in 1941, an increase from the 32% of 1940. German participation dropped from 44.9% in 1940 to 28% in 1941. The effect of the blockade is strikingly illustrated

by the falling off in trade in the three largest ports in Sweden. By comparison with 1939 the 1941 traffic was 80.8% less at Göteborg, 66.8% less at Stockholm, and 62.2% less at Malmö.

d. Canals

Extending through the south-central part of Sweden there stretches a series of lakes and rivers that were joined together in 1832 to form what is collectively called the Göta Canal. This engineering feat permits boats to sail from Göteborg right through the heart of the country to Stockholm on the Baltic. No less than 5,273 boats passed through its many locks in 1939. Because there is a difference in land levels of 300 feet, no less than 65 locks are required to raise and lower the ships. The large lakes of Vättern and Vänern, as well as the rivers, provide a natural passageway for the greater part of the distance. The entire route, including the Trollhätte Canal, amounts to 240 miles, but actual canal construction totals only 56 miles. The water in the constructed part of the canal is rather shallow, and vessels drawing more than 9.2 feet are unable to navigate.

There are nine other canals in Sweden, several of which handle more freight but none of which are as famous as the Göta Canal. (See Appendix for details on canal traffic).

During the year 1941 a canal across the Falsterbo Peninsula was completed. Because of the shallow water, ships of great draught were unable to pass around this point and remain within the territorial limits of Sweden. Mines made navigation on the high seas rather hazardous. The Falsterbo Canal now permits large ships to pass from the Baltic to the Kattegat in safety. The total length is about 17 miles but the actual canal distance is only 1 mile. The canal varies from 44 to 110 yards in breadth and has a depth of about 24 feet. A 1,100-yard long lock permits ships to continue sailing while the difference in water level is being adjusted. Ships of a greater beam than 65.6 feet or a greater draught than 20 feet cannot pass through, though there is no limit on the length of the vessel.

On the canals and lakes of Sweden are found many ports which range in size from insignificance to places as well known and as important as Jönköping and Eskilstuna. Extensive engineering work has been required to develop this important inland waterways system which links up with the country's modern road and highway system. (See Appendix for futher details.) However, only three of these inland passages are deep enough to permit vessels of any great size: The Trollhätte Canal connecting the North Sea with Lake Vänern, and the Södertälje and Hammarbyleden Canals, both of which connect Lake Mälaren with the Baltic. In Lake Mälaren, channels have been dredged admitting vessels up to 18 foot draught.

c. Pilotage, Light House, and Signalling Facilities

Navigation has been aided through the building of light houses and radio signalling stations. Men and equipment are also maintained for rescues at sea. No less than 60 people were saved from drowning in 1939. In the same year, the following facilities were maintained, to reduce the hazards of shipping:

Pilot stations	84
Light houses and light ships	724
Life saving stations	16
Pilot personnel	676
Other personnel	597

In addition to the above there were, in the same year, 2 signal stations for two-way communications with ships, 9 coastal radio stations, 3 radio direction finding stations, and 25 radio beacon stations of which 21 were for ships and 4 for aircraft.

37. Commercial Aviation

Though Sweden was not a belligerent in the first war, her aviation pioneers kept abreast of the technical advances in the field. The first effort to establish a consistent air service was the organization in 1919-20 of A.-B. Svenska Lufttrafik, which collaborated with Danish and German firms in maintaining an air service between Warnemünde, Copenhagen, and Malmö. In the late summer of 1920 it tied in its service with continental routes to Berlin, Amsterdam and London. The year following, service was extended to Stockholm and Reval. This firm used German planes chiefly. Another firm, started in 1919 and operating for several years, P.O. Flygkompani, engaged chiefly in short trips and sightseeing ventures. It employed British planes. In 1920 it made several regular trips on a Stockholm-Åbo-Helsinki run.

Commercial flying in Sweden was placed on a solid foundation in 1924 when Swedish Air Lines (Aktiebolaget Aerotransport) was organized. It began regular service between Stockholm and Helsingfors, and Malmö-Hamburg. A mail service to London was inaugurated in 1928. Before the second World War broke, there were regular air connections with Finland, England, and all major points in Russia. By the summer of 1940 investigations were afoot, looking to the inauguration of an air service to the United States, by way of Iceland and Greenland.

There are only 4 civil airports of any significance in the country, and these are all concentrated in the southern part. (See appendix for detailed information on airports). The main air line extends from Stockholm to Malmö, and on this route a string of emergency landing stations have been erected none of which are more than 30 miles apart. (See map in appendix.)

The Swedish Air Lines is the only transport firm of any significance. (See appendix for further details.) It has a

monopoly of all air service and a majority of its stock is owned by the government. Since 1937 it enjoys a state subsidy, beginning at 252,000 dollars, but decreasing annually by 18,000 dollars. The president and general-director is A. Granholm; the managing director, Captain C. Florman. In September, 1940 this company maintained services to Finland, Moscow, Berlin, Vienna, Budapest, Copenhagen, and Malmö. Several of these services were, of course, operated in conjunction with the transport companies of other countries. On December 1, 1941 there was one plane leaving daily at 9:00 a.m. for Åbo and Helsingfors in Finland, and another at 8:00 a.m. for Malmö, Copenhagen, Oslo, Munich, Berlin and Lisbon. In March, 1942, it was reported that an airmail route to England had been established temporarily. The Swedish Air Transport Company has the distinction of being the first foreign air service to operate its planes over German territory since the outbreak of the war.

The equipment, as of December 1, 1939, consisted of four Douglas DC.3, five Junkers Ju.52, one Junkers Ju.86, two Fokker F. XII, and one additional Douglas DC.3 purchased from Swissair in 1940. All radio beacons - those of the so-called Lorenz construction are used - and radio direction finders are of German manufacture, while the airfield lights and signals are made in Sweden. Aviation fuel is provided by the Standard, Shell, and Anglo-Iranian oil companies.

The following table indicates the extent of air flown commerce in 1939 and 1940:

Number of Routes ---------- 12 (this number has been reduced)

	1939	1940
Total distance flown:	1,801,979 miles	936,530 miles
Planes leaving Swedish Fields.		
Swedish	20,083	12,847
Foreign	3,268	1,790
Passengers leaving:	52,274	25,866

Freight carried:	1,126,562 pounds	---
Mail carried:	1,272,067 "	---

Interest in private aviation is promoted by the Royal Aero Club of Stockholm which, with its 51 or more flying clubs scattered about the country, had a total membership of 10,000 in 1939. The national government recommended a grant of 48,000 dollars to subsidize private aviation in 1939-40. The Swedish Association for Model and Glider Aviation (Svenska Modell-och Segelflygförbundet), also of Stockholm, has 7 affiliated clubs to promote interest in these sports. The lack of landing facilities and the relatively high cost of air craft has had a retarding effect on the development of private aviation. In November, 1938, there were only 58 registered airworthy aircraft in the entire country, and this number included the machines of the Swedish Air Lines.

The authority over civil aeronautics is lodged with a Railway and Aviation Bureau, a sub-division of the Royal Board of Roads and Waterways.

For the future, the potentialities of civil aviation in Sweden are great. Several factors will serve to promote it. The average population density is not high (40 per square mile), and farming or forest regions are found throughout the country. From the central part of the country northward, the terrain is rather rough, and extensive preliminary work will be required to put landing fields in shape. Long winters and heavy snowfalls present the chief problem here. Central Sweden, where various industries are located, is filled with small and large lakes. This region will provide excellent seaplane bases in the summer, but skis will be required during the winter months. The plains of Skåne at the southern tip of Sweden provide very favorable opportunities, both because of the relatively level terrain and the more favorable climate.

38. Commerce

Swedon's industrial economy is geared to a foreign trade that seeks markets for iron ore, forest products, and manufactured goods, and that invites imports of food, clothing, coal, oil, and other raw materials for its factories. About 1/3 of the total industrial output is exported. Foreign trade in 1939 totalled approximately $1,052,956,560 of which about 600 million dollars represented imports, and 4½ million dollars exports. About 15 million tons of iron ore are mined each year 90 per cent of which is exported. By contrast, domestic copper needs total about 40,000 tons, of which 60 per cent must be imported. Swedish manufactures do not produce for a mass market, but concentrate rather on technically perfect products that command both great respect and a high price in world markets. (See appendix for list of exports and imports.)

The bulk of Swedon's trade naturally, is with European countries. In 1936 no less than 75 per cent of Swedon's imports and 79 per cent of her exports were confined to this region. Great Britain and Germany were the two most important countries; between them they accounted for 20 to 25 per cent of the total trade turnover. Germany was the chief source of imports and Great Britain of exports. By 1939 the United States had climbed into second place as an import source. It was upon the United States that Swedon was dependent for such things as gasoline, oil, lubricants, and motor cars, though Germany was also an important source for the latter. In normal times Swedon was far from being an economic vassal of the Reich. Out of an export total of 453 million dollars in 1939, the United Kingdom took 22.5%; Germany, 19.5%; and the United States, 9.6%. Similarly, out of an import total of $599,400,000, Germany supplied 24.8%; the United States, 16.8%; and the United Kingdom, 13%. Since the outbreak of the war, however, Swedon has no market but that of the Nazi dominated countries. This has drastically altered the normal trade patterns. The ships permitted to pass the Skagerrak blockade in 1941 accounted for only

10 per cent of the normal total foreign trade. From January through May 1942, 28 vessels cleared each way.

The following tables indicate exports and imports by five major groups and by country for the year 1939, the last normal year.

Country

	Imports (In dollars)	Exports (In dollars)
Germany	148,752,000	102,144,240
United States	99,422,400	42,874,560
Great Britain	78,695,760	102,144,240
Netherlands	23,978,880	---
Norway	21,237,840	32,987,760
Denmark	---	23,550,000

Five Major Groups

Paper, pulp, etc. --- Total --- $120,112,080

Great Britain	$38,727,520
United States	32,796,720
Italy	8,468,160

Non-precious metals and products thereof - Total $75,574,320

Great Britain	$13,266,720
Germany	10,918,000
Denmark	5,803,680

Mineral and fossil products --- Total --- $61,650,960

Germany	$46,838,400
Great Britain	6,257,760
United States	2,318,400

Wood, cork, and products thereof - Total --- $51,668,880

Great Britain	$19,019,520
Netherlands	7,966,560
Germany	7,956,000

By 1941 total imports had dropped to $201,208,000 and exports to $324,312,000. The following table indicates the trend in Swedish-German trade since 1939.

	1939	1941
Imports	$145,000,000	$217,500,000
Exports	95,500,000	177,500,000

(804)

PROVISIONAL EDITION

FREE

SWEDEN

FLOW OF SHIPPING

MAIN PORTS AND DESTINATIONS

1939

VOLUME OF ARRIVALS AND CLEARANCES TOTALLING 200,000 NET REGISTER TONS OR MORE IN THOUSANDS OF NET TONS

Less Than 500 | 500 | 1,000 | 2,500 | 5,000 | 10,000 | Over 15,000

Thousands of net tons

PRIMARY SHIPPING ROUTES

Kilometers 0 50 100 150 200

Nautical Miles 0 50 100

NORWAY SEA

SWEDEN

GULF OF BOTHNIA

FINLAND

GULF

GULF OF FINLAND

ESTHONIA

LATVIA

LITHUANIA

BALTIC SEA

EAST PRUSSIA

POLAND

GERMANY

DENMARK

KATTEGAT

LULEÅ
PITEÅ
MURJSUND O SKUTHAMN
SKELLEFTEÅ
SKEÅ
UMEÅ
OBBOLA
HÖRNEFORS
ÖRNSKÖLDSVIK
DONSJÖ
KÖPMANHOLMEN
BOLLSTA
DYNÄS-VÄJA
KRAMFORS
SVANÖ
SPRÅNGSVIKEN
UTANSJÖ
VIVSTAVARV-FAGERVIK
SÖRÅKER
ORTVIKEN
ÖSTRAND
SUNDSVALL
SVARTVIK
STOCKVIKEN
HUDIKSVALL
HOGBUND
SÖDERHAMN
SANDARNE
VALLVIK
NORRSUNDET
GÄVLE
SKUTSKÄR
HARGSHAMN
HALLSTAVIK
VASA
TURKU
HELSINKI
OSLO
VÄSTERÅS
KÖPING
STOCKHOLM
SÖDERTÄLJE
NYNÄSHAMN
KARLSTAD
KRISTINEHAMN
ÖTERBÄCKEN
OXELÖSUND
NORRKÖPING
BERGEN
GREAT BRIT. E. COAST
GREAT BRIT. W. COAST
HOLLAND – BELGIUM
MEDITERRANEAN
NORTH AMERICA
SOUTH AND CENTRAL AMERICA
AFRICA
EASTERN ASIA
AUSTRALIA
GRANVARE O. BÄCKEVIK
UDDEVALLA
MARSTRAND
GÖTEBORG
HOGO-KLEVA
FREDERIKSHAVN
VÄSTERVIK
VISBY
SLITE
OSKARSHAMN
VARBERG
HALMSTAD
BORGHOLM
KALMAR
PÄRJESTADEN
HÄLSINGBORG
KARLSHAMN
RONNEBY
KARLSKRONA
LANDSKRONA
ÅHUS
(KRISTIANSTAD)
MALMÖ
KÖBENHAVN
LIMHAMN
YSTAD
TRÄLLEBORG
RIGA
MEMEL
KIEL
BASSNITZ
LÜBECK
DANZIG
TO STETTIN

MAP NO. 570, JULY 15, 1942

DRAWN IN GEOGRAPHY DIVISION, O.S.S.

The German steel industry is at least partially dependent upon continued imports of iron ore, and its furnaces have been transformed to use a combination of low grade native ore mixed with as much as 65 per cent Swedish ore. No less than 9,172,000 tons in 1941, and 9,550,000 tons in 1931 went to Germany out of a recent average annual production of about 15 million tons.

In return for her iron ore Sweden must have certain fuels particularly. Her production of coal and coke is negligible. In 1938, 5.77 million tons of hard coal and 1.93 million tons of coke were imported. Domestic coal production provided only .43 million tons, though this has now been increased some 15 to 20%. To meet these needs, Germany promised to deliver in 1941, 4 million tons of coal (plus 700.000 tons arrears) and 1.7 million tons of coke. Actually, only 3.2 million tons of coal and 1.6 million tons of coke were provided. A similar deficiency was present in the delivery of commercial iron and coke pig iron.

By depending on Germany and by making trade or barter agreements with Denmark, Norway, Finland, Hungary, Roumania, France, and Italy, Sweden has been able, in spite of war and blockade, to keep her economy functioning with reasonable success. Wood products have been exchanged for Italian Caproni bombers and fruit. Switzerland has been increasing in importance as a Swedish trade outlet; by the end of 1941 this exchange was reported to total 35 million dollars. Fish have been exchanged for Roumanian lubricating oil, wax, and vaseline. Slovakia has received wood products and machine industrial products. The volume of exchange with Hungary has been growing, and increasing amounts of cellulose, paper, machines, and ball bearings are going to that country. Exports of iron, steel, and machinery have been sent to Norway in return for imports of fish and various metals.

Trade with Denmark and Finland is now carried on through a rather interesting triangular arrangement. At the end of April, 1942, Sweden and Denmark signed a treaty which obligated Sweden to

send to Denmark, lumber, pulp, paper and cardboard, iron and steel machinery and tools to a value of $3,360,000. In return Denmark n n was to send to Finland 2,204 tons of butter and 5,511 tons of sugar, or an amount equal in value to the goods she received from Sweden. The Danes were to get payment from Sweden under the terms of a clearing agreement.

Sweden and Finland signed an agreement on May 11, 1942, whereby Sweden undertook to supply $8,750,000 worth of iron and steel, and a variety of machinery to Finland. The latter is to make payment with as much cash and goods as her economic position will permit. Sweden provides Finland with an $8,750,000 credit wherewith to finance food shipments from Denmark. Sweden prefers to think of this as help tendered a neighbor in need, and not in any way as assistance to a belligerent.

Another illustration of the way Swedish trade is partly diverted into unorthodox channels, is provided by the settlement of the adverse German trade balance for 1941. On that balance Germany was behind about $24,000,000, and the Swedes refused further credits for 1942. Negotiations for the new year could continue however, when Sweden agreed to accept armaments in payment for the 1941 arrears, though the armaments were not of newest design.

Such diversions of the normal flow of trade put an added strain on Swedish economy for Swedish resources will permit but a limited degree of self-sufficiency in the face of separation from overseas markets. The heavy armaments program has had a stimulating effect, and registered unemployed at the end of 1941 numbered only 19,583. Seasonal fluctuations had increased this to 25,000 by April, 1942. Strenuous efforts are being made to encourage domestic production of substitutes for products normally imported, such as wood-gas for petroleum. But the future is not bright; the standard of living must inevitably go down until international trade can be resumed.

39. Communications.

a. Postal System.

The Royal Post Office of Sweden celebrated its 300th anniversary in 1936. At its inception it had been organized to maintain connections between the government at home and the Swedish armies then fighting in the Germanies. Today it is a large and efficient organization serving the whole country. During peacetime, it despatches airmail nightly to England and the continent.

In 1940 the distribution within the country was effected through 420 post offices, 3,745 rural substations, and 274 mobile units. Over one billion pieces of mail were handled. To direct its affairs and distribute the mail, there were employed 6,777 individuals. Postal routes totalled 100,347 miles. By 1939, 10,205 of these were by rail, 52,462 by road, 26,366 by sea, and 11,314 by air. During 1940, the sea and air routes were sharply reduced. It is evident that the country is adequately served, though the fuel shortage may be curtailing the services during 1941-42.

The present war has drastically interrupted postal connections with foreign countries. Night airmail has been cancelled and other airmail to the continent reduced to 1 or 2 trips a day. The following table for 1939 indicates the volume of traffic in the interior and with foreign countries. During 1940 the volume of mail in the interior increased while foreign traffic showed an abrupt decline. Figures refer to 1000 units each:

	Letters	Packages	Money Orders	Magazines and Newspapers	Total
Interior	618,358	10,260	50,148	269,385	948,151
To foreign countries	23,415	222	207	3,491	27,335
From foreign countries	32,348	623	155	3,061	36,187
In transit	1,319	50	--	21	1,390

The post office is managed by a Director General who is the head of the Royal Post Office Board (Generalpoststyrelsen), a sub-division of the Ministry of Communications.

b. Telephones.

In the number of telephones relative to population, Sweden is exceeded only by the United States and closely approached only by Denmark and Switzerland. In 1939 there were 13.69 telephones per 100 population, the highest in Europe. By comparison, France had only 3.79 and Germany 5.28 telephones per 100 inhabitants. The city of Stockholm was exceeded only by San Francisco in the number of telephones in relation to population. In 1940, there were 6,988 telephone stations, and 3,358,000 miles of telpehone wire. (For an indication of main lines see communications chart). In 1939 no less than 1,195,000,000 telephone conversations were recorded, or 189 per capita, a figure which on an absolute basis places Sweden sixth in the world.

Government ownership of communication services is the rule in Sweden. There are only six private telephone companies operating in addition to the State system, and these are all of minor importance. They perform only local services and are not connected with the State network. Of a total of 864,799 telephones at the end of 1939, only 1,697 were owned by private concerns. The Royal Telegraph Office, a subdivision of the Ministry of Communications, is vested with authority over the State telephone system.

The manufacture of telephone parts and equipment is still a private endeavor. In this field the world famous L. M. Ericsson pioneered and made distinct contributions. The corporation which today bears his name has its main plant at Stockholm where practically everything in the field of telephonic communication is manufactured.

c. Telegraph.

In the field of telegraphic communication, Sweden is less outstanding than she is in the development of the telephone. In 1940, she had 4,221 telegraph stations connected by 14,000 miles of wire. The miles of wire totalled only .22 per 100 population while it was .42, .76, and 1.25 for Belgium, France, and the United

States respectively. However, the service seems adequate to the needs of the country. Including domestic and foreign telegrams, not less than 5,357,000 were sent in 1940. About 22,000 people are employed in telegraphic work. (See appendix for list of telegraph stations and communications chart.)

The Royal Telegraph Office, which owns and directs the telegraph system, is under the Ministry of Communications. Its general director in 1939 was G. H. Ericson. The local administration of the network is arranged in six districts, with centers in Malmö, Göteborg, Norrköping, Stockholm, Gävle and Sundsvall.

d. Cables

Sweden possesses extensive international cable connections, though the only direct contacts are with her northern neighbors. By 1936 8 submarine cables had been laid to Denmark, 1 to Finland, and 3 to Germany. (See communications chart.) The Swedish share of these cables in 1940 was 178 miles. Within the country there are 843 miles of cable under water, 4,988 under ground, and 1623 miles on ordinary overhead lines. In 1940, the cables carried 2,055,000 telegrams from Sweden to foreign countries, and 290,000 in transit.

e. Radio

Radio activities in Sweden are directly controlled by the state. Of 31 broadcasting stations in operation in 1940, only 11 were privately owned, and even these were under some public control.

(1) Technical Aspects

A sharp distinction is made between the technical and the cultural aspects of radio's function in Sweden. The former is handled by arrangement with the Royal Telegraph Office, which is equipped to deal promptly with the engineering problems that arise. It also collects the license fees. Broadcasting is highly centralized in that the same program radiates from all stations by means of permanent chain broadcasting, and only infrequently are local programs put on the air. The interest in radio is keen. By the end of March 1941, the list

of licensed radio sets was over 1,500,000. The license fee per set is 10 kronor ($2.40), 3.10 kronor of each license fee is applied to program expenses.

(2) Programs

The cultural side of the Swedish radio service is supervised by a corporation, A.-B. Radiotjänst of Stockholm. In form this is a private corporation, its shares being owned by the daily press and by the radio industry, but it is subject to government control, since four of the seven directors are government appointees. The programs come under the scrutiny of a special committee of fifteen appointed by the Radio Division of the Royal Telegraph Office.

(3) Radio Communication

Radio communications with foreign countries are now transmitted through the Stockholm Radio Station. Previously all messages were sent through Göteborg, with the exception of those to the United States. Radio messages to this country are now wired to the Varberg station where they are automatically transmitted by radio. (See appendix for list of short wave stations.) All radiograms received are picked up by the Enköping station and re-transmitted by wire to Stockholm. In 1940, radio telegraph stations on land exchanged 875,000 radio telegrams with other land stations, and 33,700 with ship stations. The exchange between ship stations alone totalled 41,800. Of the radiotelegraph stations in operation during the same year, 467 were on ship, 36 on land, and 3 were used for direction finding. The Royal Telegraph Office maintains coastal stations at Boden, Härnösand, Vaxholm, and Göteborg, while those at Tingstäde on the island of Gotland, and at Karlskrona, are operated by the Navy.

40. Finance.

That the war is placing a strain on Sweden's economy is reflected partly in the finances of the government. For the fiscal year 1940-41, the state budget closed with a deficit of 1,609,000,000 kronor ($386,160,000). This was charged to a Budget Equalization Fund whose deficit was thus raised to 2,368,000,000 kronor ($568,320,000). The estimated deficit for 1941-42 is 2,146,000,000 kronor ($ 536,500,000). The budget for 1942-43 provides for the expenditure of 2,324,000,000 kronor ($557,760,000), offset by revenues of 2,327,000,000 ($558,480,000). The national debt in 1941 rose from 4,518,002,412 kronor ($1,084,320,579) to 6,148,638,243 kronor ($1,475,673,178). Two defense loans sold during the year netted about 1,200,000,000 kronor ($288,000,000). A third loan in the spring of 1942 yielded 1,102,061,720 kronor ($264,495,000). For several reasons the gold holdings increased in 1941 from 671,926,475 kronor ($161,262,354) to 938,240,497 kronor ($225,177,719). Business conditions as reflected in the holdings of commercial banks, and in statements of bill protests and insolvencies were decidedly better in 1941 than in 1940, though prospects for 1942 are not very bright.

Foreign trade is of course severely restricted, and largely (nearly 70% of it) limited to exchange with Germany. The foreign exchange quotation of the Swedish krona in New York has been 23.90¢ for a long time.

The accepted unit of monetary value is the krona, though theoretically the standard unit is the gold piece of ten kronor. The krona is divided into 100 öre. The coins minted are: one and two krona pieces (silver); 50 öre, 25 öre, 10 öre (silver; nickel and copper); 5 öre, 2 öre, 1 öre (copper; bronze). Just recently a 5 öre piece chiefly of iron, was approved. Currency units up to 1000 are: 5, 10, 50, 100, and 1000 kronor bills.

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SURVEY OF SWEDEN

Volume II - Appendices

25 June 1942

Second Edition: 3 November 1943

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Prefatory Note
to second edition
of Survey on Sweden

The survey on Sweden was prepared during May and June of 1942. For some time no further copies of it have been available. Therefore, it is deemed worth while to issue a reprint to meet the additional calls for copies. Were time available, the original text might be modified in various passages and, on some points, brought up to date. This would be true particularly of the discussion on Sweden's foreign trade and the transit traffic. Most of the discussion, however, remains valid.

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SWEDEN

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APPENDIX I

Population of the Large Cities,
as of December 31, 1940

Stockholm	590,543
Göteborg	281,302
Malmö	155,465
Norrköping	70,835
Hälsingborg	62,310
Örebro	48,910
Borås	48,328
Eskilstuna	40,703
Gavle	39,737
Västerås	38,729
Linköping	38,507
Uppsala	36,535
Karlskrona	29,738
Karlstad	28,917
Halmstad	27,935
Lund	27,530
Karlskoga	26,094
Kalmar	21,370
Landskrona	20,922
Sundsvall	18,679
Trollhättan	17,551
Uddevalla	16,816
Ostersund	16,616
Mölndal	16,530
Kristianstad	16,308
Södertälje	15,848
Vaxjö	15,586
Tralleborg	14,622
Falun	14,231

APPENDIX II CONFIDENTIAL

Percentage of Families at Various Levels of Income (1935 census)

Level of Income	Percentage of Total Families
Less than 1,000 kroner ($240)	2.2
1,000 - 2,000 " ($240-480)	28.9
2,000 - 3,000 " ($480-720)	22.2
3,000 - 4,000 " ($720-960)	12.9
4,000 - 6,000 " ($960-1,440)	8.4
6,000 - 8,000 " ($1,440-1,920)	2.6
8,000 kroner and over ($1,920 and over)	3.8

Population of the Large Cities, - Continued

Luleå	14,018
Umeå	13,706
Kristinehamn	13,463
Nyköping	13,361
Västervik	13,006
Härnösand	12,518
Skövde	12,513
Visby	12,505
Lidköping	11,681
Lidingö	11,440
Ystad	11,154

APPENDIX II CONFIDENTIAL

Percentage of Families at Various Levels of Income (1935 census)

Level of Income	Percentage of Total Families
Less than 1,000 kroner ($240)	2.2
1,000 - 2,000 " ($240-480)	28.9
2,000 - 3,000 " ($480-720)	22.2
3,000 - 4,000 " ($720-960)	12.9
4,000 - 6,000 " ($960-1,440)	8.4
6,000 - 8,000 " ($1,440-1,920)	2.6
8,000 kroner and over ($1,920 and over)	3.8

APPENDIX III CONFIDENTIAL

Workers in Various Industries and Value of Product

INDUSTRY	Workers	Value of Product in Dollars
Mining and Metal	208,754	677,174,400
Wood	65,938	138,579,120
Food	51,201	430,243,440
Textile and Clothing	84,286	192,431,760
Chemical-technical	16,483	94,216,560
Gas, Electricity and Waterworks	8,948	71,197,200

(504)

APPENDIX IV

WAGE STATISTICS FOR 1939

Activity	Sex	Total Employed	Average Annual Wage		Low Wage (chiefly rural)		High Wage (chiefly urban)		In Stockholm	
			Kronor	Dollars	Kronor	Cents	Kronor	Cents	Kronor	Cents
Metals and Mining	M	130,326	3,251	780.24	1.12	.27	2.17	.52	1.74	.42
	W	7,996	2,152	516.48	.78	.19	1.01	.24	1.07	.26
Coal Mining, Stoneware and glass	M	26,282	--	--	1.04	.25	1.67	.40	1.97	.47
	W	2,037	--	--	.61	.15	--	--	--	--
Lumbering and Carpentry	M	35,681	2,465	591.60	.98	.24	1.17	.28	1.69	.41
	W	363	1,655	397.20	.63	.15	.80	.19	1.08	.26
Paper and Related Manufacturing	M	38,104	3,199	767.76	1.12	.27	1.59	.38	1.93	.46
	W	5,818	1,990	477.60	.73	.29	.87	.21	1.02	.24
Food Products and Tobacco	M	21,642	3,352	804.48	1.18	.28	1.60	.38	1.78	.43
	W	10,844	2,000	480.00	.63	.15	.95	.23	1.10	.26
Textiles and Clothing	M	19,440	2,573	617.52	.96	.23	1.42	.34	1.55	.37
	W	40,499	1,799	431.76	.72	.17	.63	.15	.95	.23
Leather and Rubber Goods	M	10,643	2,835	680.40	1.07	.26	1.42	.34	1.52	.36
	W	6,476	1,803	432.72	.72	.17	.65	.16	1.00	.24
Chemical-Technical Lines	M	9,521	3,171	771.04	1.16	.28	1.95	.47	1.58	.38
	W	3,643	1,846	443.04	.66	.16	1.09	.26	.93	.22
Building Activity	M	37,430	—	—	1.27	.30	1.88	.45	2.46	.59
State Owned Enterprises	M	23,396	3,333	799.92	1.06	.25	1.62	.39	1.84	.44
	W	1,679	2,228	534.72	—	--	1.17	.28	1.12	.27
Municipally Owned Enterprises	M	22,299	4,061	974.64	1.23	.30	1.59	.40	2.17	.52

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APPENDIX

WAGE STATISTICS FOR 1939

Activity	Sex	Total Employed	Average Annual Wage		Low Wage (chiefly rural)		High Wage (chiefly urban)		In Stockholm	
			Kronor	Dollars	Kronor	Cents	Kronor	Cents	Kronor	Cents
Trade and Warehousing	M	8,554	3,252	782.88	.99	.24	1.44	.35	1.57	.42
	W	1,975	1,944	466.56	.54	.13	.93	.22	.88	.21
Communications	M	11,253	3,715	891.60	2.38	.57	2.37	.57	2.14	.51
Laundry Services	M	267	3,202	768.48	--	--	--	--	1.34	.32
	W	974	1,847	543.28	--	--	--	--	.85	.20

Source: Årsbok, 1941, pp. 252-3.

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APPENDIX V

List of Bishops and Dioceses in the Swedish Lutheran Church, as of 1940

Diocese	Bishop
Uppsala	Erling Eidem
Linköping	Tor J. E. Andrae
Skara	Gustaf Karl Ljunggren
Strängnäs	Gustaf E. H. Aulén
Västerås	John Cullberg
Växjo	Yngve Torgny Brilioth
Lund	Edward Magnus Rodhe
Göteborg	Carl E. O. Block
Karlstad	Arvid Runestam
Härnosand	Torsten B. Bohlin
Luleå	Bengt I. J. Jonzon
Visby	David T. Ysander

The Bishop of Uppsala is the Archbishop of Sweden. He is chosen in a composite manner by the clergy of the diocese, all the chapters of the Kingdom, and the University of Uppsala.

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APPENDIX VI

Religious Dissenters and Minorities

in Sweden, 1930

Baptist	55,449
Free Baptists	1,449
Pentecostal Friends	31,969
Methodist Episcopal	11,450
Salvation Army	11,495
Roman Catholic	4,818
Jewish	6,653
Union of Saints (Helgelseförbundet)	1,872
Adventist	1,443
Free Religious	1,468
Greek Orthodox	508
Mormons	331
Anglicans	275
Laestadians	257
Theosophists	228
Swedenborgians	208
Catholic Apostolic	204
Christian Science	200

Note: A partial list of estimates for 1935 gives the figure for Roman Catholic as 4,100 and for the Jewish 10,000.

(504)

APPENDIX VII

LEADING NEWSPAPERS IN SWEDEN

Newsbureaus

Tidningarnas Telegrambyrå, a corporation, subscribed to by nearly all Swedish newspapers. Semi-official through friendly ties with the government. Director - Gustaf Reuterswärd. Member of the International Union of News Agencies.

Name	Publisher	Circulation	Frequency of Issue	Readers	Political Leaning	Editor
Aftonbladet. (Stockholm)	Aftonbladet Corporation.	80,000. Bi-weekly edition: 51,000.	7 times a week in the evening. Twice weekly for outlying districts	90% of edition sold in street sale. 83% purchased by people living in Stockholm; the rest in the provinces.	Liberal	P.G. Peterson
Arbetet (Malmö)	A.-B. Framtiden	32,000	6 times a week at noon, on working days.	Working people in Malmö and South Sweden.	Social-Democrat	Allan Vougt
Dagens Nyheter (Stockholm)	Dagens Nyheter Corp.	Average during the first half year of 1936: 136,699, of which the country edition was 22,808. Sunday circulation nearer 200,000	7 times a week in the morning.	Liberal middle class all over Sweden-also military and intellectual circles.	Liberal	Sten Dehlgren
Folkets Dagblad (Stockholm)	Corporation		6 times a week in the morning.	Communist worker circles in Stockholm and environs.	Communist-independent of the 3rd International.	Nils Flyg
Göteborgs Handels- och Sjöfarts Tidning (Göteborg)	Corporation		6 times a week at noon.	The mass of the shipping and trading circles of the entire country. 65% of circulation in Göteborg itself.	Liberal	Torgny Segerstedt

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Name	Publisher	Circulation	Frequency of Issue	Readers	Political Leaning	Editor
Skånska Dagbladet (Malmö)	Corporation	40,630. 35% sold in city and rest in Province of Skåne.	Twice a day on weekdays-morning and afternoon	Farmers and agriculturalists in Malmö and entire south Sweden.	Main organ of farmers union in south Sweden.	Hj. Berlin
Social-Demokraten (Stockholm)	Owned by the labor unions.	47,600 daily. 65,500 on Sunday.	7 times a week in two cities and provinces.	Worker circles in Stockholm and entire country.	Main organ of Social Democratic Party. Official organ of the labor unions.	Zeth Hoglund
Stockholms-Tidningen Stockholms-Dagblad (Stockholm)	Corporation. Torsten Kreuger is the chief stockholder.	150,000 daily. 20,000 more on Sunday. Stockholm 104,300.	7 times weekly in the city and province. Sweden's largest daily paper.	Appeals to the higher middle class.	Liberal-stands near the People's party.	Dr. Börje Brilioth
Svenska Dagbladet (Stockholm)	Corporation.	Average for the first half of 1936 was around 82,500.	7 times weekly in the morning in the capital city and provinces.	Chiefly circulated among the educated and substantial circles of the country. Read most by the leading figures in industry and commerce.	Conservative. Organ of Conservative Party.	Carl Trygger
Svenska Morgonbladet (Stockholm)	---	---	---	---	People's Party.	O. Ollén
Sydsvenska Dagbladet (Malmö)	Corporation. Carl Trygger is the main stockholder and chief editor.	Weekdays-39,500 Sunday-68,250	7 times a week in the morning.	Leading mercantile circles, industry, academic youth.		Gösta Tirelius
Uppsala Nya Tidning	---		---	---	People's Party.	Axel Johansson

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Name	Publisher	Circulation	Frequency of Issue	Readers	Political Leaning	Editor
Göteborgs Morgon-post (Göteborg)	---	---	---	---	Conservative	S. Neander-Nilsson
Hälsingborgs Dagblad (Hälsingborg)	Corporation		7 times a week in the morning.	Middle class, farmer, and shipping circles in Hälsingborg and environs.	Conservative-leans to the right.	Ove Sommelius
Nationell Tidning (Stockholm)	Corporation		Once a week.	Nationalist circles everywhere in Sweden, especially among academic youth.	Organ of the "Sveriges Nationella Forbund." One of the pro-Fascist groups.	Thure Grafström.
Norrköpings Tidningar (Norrköping)	Publication Director-Albin Nylin.		6 times a week in the afternoon.	All groups in and about Norrköping.	Moderately Conservative.	John Börjesson
Ny Dag (Stockholm)	---		---	---	Communist (Syndicalist).	Gustav Johansson
Ny Tid (Göteborg)	Corporation		7 times weekly in the afternoon, Sunday forenoon.	Worker circles in Göteborg and west Sweden.	Social-Democrat-leading organ of this party in West Sweden.	Emil Rosén
Nya Dagligt Allehanda (Stockholm)	A. Wenner-Gren has been heavily interested in the owning corporation.	58,362	7 times a week in the afternoon.	Prosperous middle class, especially in Stockholm.	Conservative.	Harald André
Östgöta Correspondenten (Linköping)	---		---	---	Conservative	C.R.E. Ridderstad
Östergötlands Dagblad (Norrköping)	Publication Director, E. Berghammar.		6 times a week on weekday mornings.	Middle class circles in Norrköping and farmers in the environs.	Moderately Conservative.	Dr. Ivar Anderson.

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APPENDIX VIII

List of Economically Important Swedish Cities, Arranged Alphabetically

Bofors - Population - 3,000

Location: Industrial city just west of Örebrö, not far from where the Tims river empties into the Möckeln.

Hotel Accommodations:-One modern hotel - size unknown.

Communications: The Nora - Töreboda secondary railroad passes through the city and connects with the electrified Charlottenberg-Laxå line.

Economic Importance:

Center of the best known and most important armament works in Sweden. Here is also found one of the country's largest steel works.

Factories: Aktiebolaget Bofors makes alloy steel, ammunition, armor plate, explosives, iron and steel. Dynamite plant in a suburb of Bofors. To the northeast, in the small town of Gyttorp, there are factories producing nitro-glycerine, dynamite, powder and ammunition.

Borås - Population - 48,328

Location: Lies on the Visk river 35 miles east of Göteborg.

Hotel Accommodations:-171 rooms with public bath and running water, 12 with private bath.

Communications: At junction of main Göteborg-Alvesta line, and the Varberg-Herrljunga intermediate line. Two railroad stations.

Economic Importance: The most important cotton manufacturing town in Sweden.

Factories:

Chemical - 2

Clothing - 21

Cotton Goods - 5

Hosiery - 13

Knit Goods - 5

Woolen Goods - 3

Domnarvet - Population - 14,690

Location: Steel town 14 miles southeast of Falun, near the Borlänge Railroad junction.
The town lies on both sides of the Dalälven River.

Hotel Accom - - - Unknown

Domnarvet

Communications: - Station on the Ludvika - Falun railroad.

Economic Importance: The iron works here are considered to be the largest of their kind in Scandinavia.

Factories: The Domnarvet Iron and Steel Works, a subsidiary of the Stora Kopparbergs Bergslags A.-B., produces iron, steel plate, steel rails, welding wire and welding electrodes.

Eskilstuna - Population - 40,703

Location: Between Lakes Hjälmaren and Mälaren on the Eskilstuna River just west of Stockholm.

Hotel Accommodations - - - Unknown

Communications: Electrified railroad to Södertälje, and secondary line from Kolbäck to Nyköping.

Economic Importance: The Sheffield of Sweden.

Factories:

Agricultural Hand Implements - 1

Agricultural Machinery - Bolinder - Munktell Aktiebolaget

Crude Oil Engine and Diesel Oil Engines.

Tractors

Axe and Hatchet - 1

Builders' Hardware - 2

Cooking Stoves - 1

Cutlery - 3

Engineers Machine Tools - 1

Files - 1

Kitchen Utensils - 2

Knives - 1

Locks - 4

Measuring Tools - C. E. Johansson, Aktiebolaget

Metal Goods - 4

Pliers - 2

Razors and Razor Blades - 4

Road Machinery - Bolinder-Munktell Aktiebolaget.

Saws - 2

Surgical Instruments - 1

Factories cont'd.

Tools, Carpenter and Precision - 3

Woodworking Machinery - 1

Falun - Population - 14,231

Location: West of Gävle on the Falun River. County seat for Kopparberg County.

Hotel Accommodations: 325 rooms with public bath and running water, and 30 rooms with private bath.

Communications: Falun lies at the junction of the Gävle-Rättvik and Borlänge - Ockelbo main line railroads. Two railroad stations.

Economic Importance: Home of Stora Kopparbergs Bergslags Aktiebolag, one of Sweden's largest industrial concerns. The state maintains one of its large broadcasting stations in Falun.

Factories: The Stora Kopparberg produces iron, steel, and chemical wood pulp, manufactures, and operates sawing and planing mills.

Gavle - Population - 39,737

Location: Seaport on the Baltic. County seat of Gävleborg County. City lies on both sides of the Gävle River which here flows into Gävle Fjord.

Hotel Accommodations: 225 rooms with public bath and running water, and 8 with private bath. There is a public bath-house in the city.

Communications: Gävle lies directly on the electrified line to Stockholm, and has branch connections at two places with the main electrified railroad from Malmö to Boden.

Economic Importance: Largely a lumber center. Chief exports: sawn and planed timber, paper and wood pulp.

Factories:

Sawing and Planing Mills - 1

Soap - 4

Sporting and Athletic Goods -1

Wood Pulp (chemical) - 2

Woolen Goods - 2

Flour Mill - 1

Cotton Goods - 1

Sole Leather - 1

Göteborg - Population - 281,302

Location: Swedon's second largest city and most important seaport. Lies on the left bank of the southern of the two estuaries of the Göta River, and about four miles from the Kattegat.

Hotel Accommodations: 1075 rooms with public bath and running water, and 78 rooms with private bath. Three large public baths belonging to the city.

Communications: The center for Swedish transoceanic lines. Other facilities include airlines, Göta canal to Stockholm, and main line railroad connections to all parts of the country.

Economic Importance: Swedon's largest seaport and shipbuilding center.

Factories:

Bolting - 2

Box and Case Board - 5

Caps - 5

Clothing - 2

Corn and Flour Mills - 4

Cotton Piece Goods - 4

Fire Engines - 1

Fish Canneries - 6

Horseshoe Nails - 2

Hosiery - 6

Margarine - 2

Marine Oil Engines - 1

Outboard Motors - 1

Roller Bearings - Svenska Kullagerfabriken, Aktiebolaget

Ship Builders - 3 - (see Appendix on shipbuilding facilities).

Soap - 4

Tent and Marquee - 2

Underclothing - 2

Welding Electrodes - 1

Wire Nails - 1

Wire Netting - 2

Hälsingborg: - Population - 62,310

Location: Southeastern seaport directly opposite Holsingör, Denmark.

Hotel Accommodations: 260 rooms with running water and public baths, and 25 rooms with private bath.

Communications: Main line electrified railroad to Götoborg and Malmö.

Economic Importance: Seaport, staples, and manufacturing city.

Factories:

Boots and Shoes - 3

Chemical (technical) - 7

Electric Dynamo and Generator - 1

Electric Machinery - 1

Electric Transformer - 1

Margarine - 2

Pistons - 2

Rubber Boots and Shoes - 1

Ship Chandlers - 3

Soap - 2

Flour Mill - 1

Tile (Paving) - 1

Wire Nails - 1

Pharmaceuticals - 1

Radiators - 1

Shirts - 1

Kalmar - Population - 21, 370

Location: Seaport just opposite the island of Öland.

Hotel Accommodations: 119 rooms with running water and public baths, and 4 rooms with private bath. One municipally owned bath house.

Communications: Terminus for the main line railroad to Nässjö.

Economic Importance: Industry, Trade, and shipping.

Kalmar Contd. CONFIDENTIAL

Factories -

Sawing and Planing Mills - 2

Corn and Flour Mill - 1

Locomotive Engines - 1

Margarine - 1

Karlskrona - Population - 29,738

Location: Seaport on the southeast coast of Sweden. Headquarters for the Royal Navy.

Hotel Accommodations: 90 rooms without running water, and 2 with private bath.

Communications: Terminus of the main line railroad to Borås from which place it is electrified to Göteborg.

Economic Importance: Import and export harbor. 4 sawing and planing Mills.

Karlstad - Population - 28, 917

Location: River port at the mouth of the Klar River near its entrance into Lake Vänern

Hotel Accommodations: 289 rooms of which 200 have public bath and running water, 50 have no public bath, and 39 have private bath.

Communications: Station on the main line electrified Charlottenberg-Laxå railroad. Terminus for the smaller but electrified line to Edebäck. Inland water transportation by Lake Vänern and the Göta canal.

Economic Importance: Export center for lumber and wood products .

Factories -

Hosiery - 3

Sawing Mills - 2

Clothing - 2

Salmon Canners - 1

Kristianstad - Population - 16,308

Location: Southeast seaport on the east bank of the Helge River. Ahus is the outport for Kristianstad.

Hotel Accommodations: 75 rooms with running water and public bath.

Communications: Junction for several secondary railroads that connect with the main line Malmö - Stockholm Railroad.

Economic Importance: One of the chief import cities in south Sweden. Trade center for a fertile agricultural region.

Factories -

Boots and Shoes - 1

Stockings - 1

Corn and Flour Mill - 1

Crispbread - 1

Woolen Goods - 1

Landskrona - Population - 20,922

Location: Seaport on the Öresund just below Halsingborg and opposite the coast of Denmark.

Hotel Accommodations:- Unknown. Public baths.

Communications: Lies on the main shipping routes. Rail connections with the main Malmö - Göteborg line.

Economic Importance: Commerce, industry and trade town.

Factories -

Hosiery - 5

Sawing and Planing Mill - 1

Soap - 1

Margarine - 1

Shipbuilders - 1

Clothing - 1

Explosives - 1

Gun Powder - 1

Linköping - Population - 36,507

Location: Inland port on Göta Canal just southwest of Norrköping. County seat for Östergötland County.

Hotel Accommodations 161 rooms of which 24 are without any bath and 5 have private bath. All rooms have running water.

Communications: Junction for the main line Malmö - Stockholm, and secondary line Vadstena - Vastervik railroads. Inland water transportation by Göta Canal.

Economic Importance: Trade center.

Factories -

Gas, Water, and Steam Fittings - 1

Linköping Contd. CONFIDENTIAL

Factories -

Furniture - 8

Hosiery - 4

Rope and Twine - 2

Margarine - 1

Cycles - 1

Woolen Goods - 1

Soap - 1

Luleå - Population - 14,018

Location: Baltic sea port in the far north. City lies on a half island at the mouth of the Lule River.

Hotel Accommodations: 95 rooms with running water and public bath. Community bath house with cold water.

Communications: Terminus for the very important Luleå-Narvik iron ore line. Connections at Boden with the main line railroad to south Sweden.

Economic Importance: Chiefly significant as export port for iron ore from the northern mines. Harbor frozen over several months of the year. The State railroads maintain large repair shops here.

Lund - Population - 27,530

Location: Inland and university town 11 miles northeast of Malmö.

Hotel Accommodations: 50 rooms with running water and public bath, and 4 rooms with private bath.

Communications: Station on the main line electrified railroad from Malmö to Stockholm.

Economic Importance: Seat of the second largest university in Sweden. Market town. Central station for the State railroads.

Factories-

Gloves - 2

Wool Spinners - 2

Water Proof Clothing - 1

Boots and Shoes - 3

Malmö - Population - 155,465

Location: Large and important seaport on the fertile plains of southwest Sweden.

Malmö Contd. CONFIDENTIAL

Hotel Accommodations: 450 rooms with running water and public baths, and 45 rooms with private bath. Community bath house.

Communications: Terminal point for two main line electrified railroads to Göteborg and Stockholm.

Economic Importance: Malmö ranks third in population, trade and industry. The harbor is the largest of artificial construction in Sweden. In the outer harbor is Sweden's second largest dry dock.

Factories -

Gas Accumulators - 1

Air Compressor - 3

Boot and Shoe - 5

Cement (Portland) - 1

Garage Equipment - 1

Hosiery - 3

Leather Goods - 2

Margarine - 3

Ship Builders - Kockums Mekaniska Verkstads A/B.

Ship Chandlers - 3

Soap - 8

Wire Netting - 2

Superphosphate Plants with sulphuric acid units.

Motala - Population - 6,522

Location: Market town in Östergötland county near where the Göta canal and Motala stream empty into Lake Vättern.

Hotel Accommodations: 70 rooms with running water and public baths, and 2 rooms with private bath.

Communications: Station on the main line electrified railway that runs from Trälleborg to Boden.

Economic Importance: Inland port on Lake Vättern. Home of the main station for the Swedish broadcasting system.

Norrköping - Population - 70,835

Location: Baltic seaport lying at the head of a deep indentation in the sea coast. City is built on both banks of the Motala River near where it flows into the Bråviken.

Norrköping Contd. CONFIDENTIAL

Hotel Accommodations: 240 rooms with running water and public bath, and 16 rooms with private bath. There is also a [illegible] community bath house.

Communications: Lies directly on the main line Malmö-Stockholm electrified railroad. Also a bus center. Possesses one of Sweden's most important harbors.

Economic Importance: One of Sweden's largest industrial centers. Next to Stockholm, Norrköping is the largest commercial town on the east coast.

Factories -

Cloth - 17

Clothing - 2

Corn and Flour Mills - 3

Cotton Goods - 4

Hosiery - 4

Joinery - 3

Yarn Spinners - 3

Shipbuilders - 1

Waterproof Clothing - 1

Wire Nails - 1

Norrtälje - Population - 5,000

Location: Small seaport at the mouth of the Norrtälje River just north of Stockholm.

Hotel Accommodations:- Unknown.

Communications: Branch rail lines to Stockholm, Uppsala and Dannemora

Economic Importance:

Factories making crude oil engines, boiler fittings, tools and steel furniture. Also iron foundry.

Örebro - Population - 48,910

Location: City on the west end of Lake Hjälmaren. The Svart River flows through Örebro and enters the lake a short distance beyond.

Hotel Accommodations: 205 rooms with running water and bath, and 36 rooms with private bath.

Communications: Station on the main line electrified Mjölby-Krylbo Railroad. The branch line from Svarta to Norrkoping also passes through here.

Örebro Contd. CONFIDENTIAL

Economic Importance: Sweden's most important boot and shoe manufacturing city.

Factories -

Boot and Shoes - 14

Boot Laces - 3

Boot Polish - 2

Metal Goods - 2

Soap - 1

Fire Appliance - 1

Östersund - Population - 16,616

Location: Railroad junction on Lake Storsjön in north central Sweden.

Hotel Accommodations: 49 rooms of which only a limited number have running water.

Communications: Junction point for the railroad from Bräcke to Storlien and the inland line from Bräcke to Gällivare.

Economic Importance: Chiefly as communications center for both busses and railroads. The State maintains here one of its main railroad machine shops. The city lies in one of Sweden's foremost agricultural regions.

Sandviken - Population - 13,000

Location: Important industrial city located in south central Sweden just west of Gävle on the shores of Lake Storsjön.

Hotel Accommodations:- Unknown.

Communications: Station on the Storvik-Gävle railroad.

Economic Importance: Home of one of Sweden's large iron works. Most of the population is employed in factories.

Factories -

Largest is Sandivkens Jernverks Aktiebolag which makes alloy steel, boiler tubes, clock spring steel, cold rolled steel, bicycle tubes, saw blades, steel wire, tool steel, and tube bloom.

Aircraft Tubing - 1

Razor Blades - 1

Södertälje - Population - 15,848

Location: Industrial and market city just southwest of Stockholm. Lies on the Södertälje canal which connects Lake Mälaren and the Baltic.

Södertälje Contd.

Hotel Accommodations:40 rooms with running water and public bath.

Communications: Station on the main line Stockholm-Malmö railroad.

Economic Importance: Chief economic activity centered around the machine and engineering shops of which the best known is A.-B. Scania-Vabis.

Factories -

Motor Cars - A.-B. Scania-Vabis

Pharmaceutical Products - 1

Bakers' Machinery - 1

Clothing - 1

Stockholm - Population - 590,543

Location: Baltic seaport lying on both sides of the outlet of Lake Mälaren to the sea.

Hotel Accommodations: 3408 rooms with running water and public bath, and 524 rooms with private bath.

Communications: Railroad and airline center for the country. Water communications by the sea and by the Göta Canal.

Economic Importance: The Capital and largest industrial center in Swedon. Here are found the government buildings, harbors, factories, and all the facilities of a modern city. As a shipping center Stockholm is exceeded only by Göteborg.

Factories -

Boots and Shoes - 6

Building Machinery - 1

Chemical (technical) - 12

Clothing - 3

Electrical Condensers - 1

Copper Goods - 1

Corn and Flour Mills - 3

Crisp Bread - 5

Crude Oil Engines - Atlas Diesel

Marine Oil Engines - Atlas Diesel

Diesel Engines - Atlas Diesel

Bicycles - 3

Dry Battery - 2

Map of Trollhättan with the Surrounding Region.

1. Administration building for state hydro-electric plant
2. Public square
3. Karl Johan's square
4. Kanal square
5. King's square
6. Post office and telegraph station
7. Hotel
8. Restaurant
9. Restaurant
10. Public school
11. Bank
12. Bank
13. Factory

Stockholm Contd. CONFIDENTIAL

Electric Cable - 1

Electric Heating Apparatus - 2

Electric Lamp - 6

Fittings (gas, water and steam) - 1

Hydraulic Press and Pump - 1

Machine Tools - 1

Machinery - 2

Margarine - 2

Metal Goods - 1

Outboard Motors - 1

Pharmaceutical Products - 2

Pneumatic Tool - 1

Radio Apparatus and Supplies - 7

Sawing and Planing Mills - 9

Springs - 2

Surgical Instruments - 3

Underclothing - 3

Welding and Cutting Apparatus - 3

Welding Electrodes - 1

Wood Pulp (chemical) - 3

Woolen Goods - 2

X-Ray Apparatus - 2

Sundsvall - Population - 18,679

Location: Baltic seaport at the mouth of the Selångor River in east-central Sweden.

Hotel Accommodations: 156 rooms of which 26 are without any bath and 10 have private bath.

Communications: Bus line center and station on the Stockholm-Sollefteå main line railroad.

Economic Importance: Trade and shipping town, and center for lumber, pulp, and paper industries the products of which constitute the chief exports.

Sundsvall Contd. CONFIDENTIAL

Factories -

Sawing and Planing Mills - 15

Ship Chandlers - 2

Woolen Spinners - 1

Plywood - 1

Trälleborg - Population - 14,622

Location: Southernmost city and seaport in Sweden.

Hotel Accommodations: 35 rooms with running water and public baths.

Communications: Terminal for the main electrified railroads to Göteborg and Stockholm. Lies athwart the shipping lanes to the Baltic.

Economic Importance: Fifth largest port in Sweden.

Factories -

Ebonite - 1 - also produces tires, tubes, hose, rubber heels and soles.

Ship Chandler - 1

Sugar -

Machine Shops

Trollhättan - Population - 17,551

Location: Lies just northwest of Göteborg, and about 7 miles from the source of the Göta River in Lake Mälaren.

Hotel Accommodations: 66 rooms of which 50 are without bath and running water.

Communications: Good rail connections through the Bergslagernas and Västergotland - Göteborg railroads.

Economic Importance: Home of largest hydro-electric plant in Sweden. About 200,000 H.P. of electric energy produced. The center and power source for several chemical plants producing ferroalloys, carbide, phosphorus, chlorate, zinc, and graphite.

Factories -

Petrol Engines - 1

Aircraft Engines - 1

Railway locomotives and Freight cars -- Nydqvist and Holm

Saws - 1

Cotton Goods - 1

Uddevalla - Population - 16,816 CONFIDENTIAL

Location: Seaport lying directly north of Göteborg on the Mölndal River.

Hotel Accommodations: 105 rooms of which 3 have private bath and 43 have neither public bath nor running water.

Communications: Junction for railroads from Göteborg to Oslo and from Jönköping to Strömstad.

Economic Importance: Chief exports are granite, feldspar, wood-pulp, paper and wood.

Factories -

Boots and Shoes - 2

Corn and Flour Mills - 2

Bicycles - 2

Soap - 1

Margarine - 1

Västerås - Population - 38,729

Located: Inland port northwest of Stockholm on Lake Mälaren.

Hotel Accommodations: 50 rooms with running water and public baths, and 6 rooms with private baths.

Communications: Station on the Örebro-Gävle railroad.

Economic Importance: Home of the largest electrical equipment manufacturing firm in Sweden, the A.S.E.A. (Allmänna Svenska Elektriska Aktiebolaget). Here is also found the large State-owned Västerås steam power plant.

Factories -

A.S.E.A. manufactures electric apparatus, cables, cranes, dynamos and generators, electric lights, electric locomotives, machinery, motors, transformers, switchboards, tramway cars, electric winches,

Aluminium, Brass, and Copper Goods - 1.

PROVISIONAL EDITION

FREE

INDUSTRIES OF SWEDEN

0 50 100
MILES

INDUSTRIES

- IRON AND STEEL MAKING AND FABRICATION
- CHEMICALS
- WOOD

OPEN CIRCLES AND SECTORS REPRESENT UNCLASSIFIED INDUSTRIES

SIZE OF SECTOR DOES NOT INDICATE PROPORTION OF TOTAL INDUSTRY

8 12 16 20 24

68 64 60 56

KIRUNA
GÄLLIVARE
LULEÅ
SKELLEFTEÅ
UMEÅ
ÖSTERSUND
SUNDSVALL
GÄVLE
FALUN
UPPSALA
VÄSTERÅS
ESKILSTUNA
STOCKHOLM
KARLSTAD
ÖREBRO
NORRKÖPING
TROLLHÄTTAN
JÖNKÖPING
BORÅS
GÖTEBORG
VÄSTERVIK
VISBY
HALMSTAD
KALMAR
HÄLSINGBORG
KARLSKRONA
KRISTIANSTAD
MALMÖ

NORWAY
SWEDEN
FINLAND
GULF OF BOTHNIA
BALTIC SEA
DENMARK

BOUNDARIES OF INDUSTRIAL AREAS

NUMBER OF WORKERS EMPLOYED IN EACH CENTER

100
200
500
1,000
10,000
20,000
30,000
40,000

MAP NO. 574, JULY 10, 1942

DRAWN IN GEOGRAPHY DIVISION O.S.S.

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APPENDIX X

Industry and Military Manufactures

A. SWEDISH INDUSTRY BY VALUE OF PRODUCTION, 1939.

(PRODUCTION)	(DOLLARS)
Ore Reduction and Metal Industry	677,174,411
Provisions Industry	430,243,460
Paper and Graphic Arts	218,938,100
Textile and Clothing	192,431,658
Lumber Industry	138,589,257
Chemical-Technical	94,217,551
Power, Lighting, and Water-works	71,197,168
Leather, Hair, and Rubber Industry	69,404,118
Earth and Stone Industry	64,239,683

B. PRODUCTION OF CERTAIN ARTICLES OF DIRECT MILITARY VALUE, 1939.

1. War Material

a. Weapons	Dollars
Daggers, sabers, bayonets, etc.	5,616
Revolvers and pistols	9,872
Sporting guns	290,315
Cannon, machine guns, projectiles, bombs & other weapons including aeroplanes.	22,432,050
	22,765,854
b. Ammunition of various kinds	4,664,765 (28,431 tons)

Note: Production of war material in state owned factories not included.

2. Transportation Equipment

a. For Railroads	Units
Locomotives	
Electric	41
Others	42
Railroad cars	
Motor driven	55
Passenger, mail, and Freight cars	841

b. For Highways

Automobiles	
Passenger cars and trucks completely built-	83
assembled cars & trucks	24,789
Motorcycles	
Completely built	13,725

Motorcycles (Cont'd.)	
Assembled	3,063
Snowplows	3,585 tons.

C. TYPE AND SIZE OF INDUSTRIES OF A POTENTIAL MILITARY IMPORTANCE, 1939

INDUSTRY	NUMBER OF ESTABLISHMENTS	EMPLOYEES ADMIN-ISTRA-TIVE	WORKERS	VALUE OF PRODUCT (DOLLARS)
Mechanical repair shops	947	1,883	14,189	24,489,586
Machine Shops	752	11,588	54,866	169,770,034
Ship and boat building yards	143	2,075	16,204	40,690,504
Factories for electrical machines	47	2,730	7,488	28,074,360
Electrical apparatus and cables	129	3,405	12,012	44,641,570
Cement	10	155	1,501	1,306,226 (tons)
Cement and asphalt foundry togother with factory for artifical stone.	289	376	3,201	7,798,557
Lumber Industry	3,788	4,787	65,938	138,579,257
Food Industry	4,574	8,462	51,201	430,243,460
Textile and clothing industry	1,167	9,587	84,286	192,431,648
Shoe factory	257	1,208	11,957	25,338,404

INDUSTRY	NUMBER OF ESTABLISHMENTS	EMPLOYEES		VALUE OF PRODUCT (DOLLARS)
		ADMINISTRATIVE	WORKERS	
Rubber and Rubber repairing	56	1,030	6,253	14,512,061
Electrical Works	683	2,366	5,275	52,764,315
Gas Works	37	701	1,362	12,077,149
Water Works	186	555	1,811	7,355,703

APPENDIX XI CONFIDENTIAL

Leading Producers of Munitions
1936

A. Government owned

Marieberg Munitionsfaktori (Marieberg)

Karlsberg Munitionsfaktori (Karlsberg)

Karl Gustafs Stads Gevärsfaktori (Eskilstuna)

B. Privately Owned

Aktiebolaget Bofors (Karlskoga)

Husqvarna Vapenfabriks Aktiebolag (Husqvarna)

Aktiebolaget Landsverke (Landskrona)

Gerh. Arehns Mekaniske Verksted (Stockholm)

PROVISIONAL EDITION

FREE

SWEDEN
ELECTRIC POWER
GENERATION AND TRANSMISSION

TRANSMISSION LINES
- 120 - 132 kw.
- 40 - 100 kw.
- Less than 40

POWER STATIONS
- ● Hydro-electric
- ▲ Steam-electric

8 12 16 20 24

68 64 60 56

NYGÅRD
NARVIK
KIRUNA
GÄLLIVARE
PORJUS
BODEN
LULEÅ
PITEÅ
FINNFORS
KRÅNGFORS
SKELLEFTEÅ
ROBERTSFORS
NORRFORS
UMEÅ
KLABBÖLE
BAGGBÖLE
HISSMOFORS
FORSED
KRÅNGEDE
HAMMARFORSEN
KRAMFORS
FRÅNÖ
HÄRNÖSAND
ÖSTRAND
SUNDSVALL
SÖDERHAMN
HÖLJEBRO
FORSHUVUD
KVARNSVEDEN
BULLERFORSEN
DOMNARVET
FALUN
GÄVLE
ÄLVKARLBY
LANFORSEN
UNTRA
MOCKFJÄRD
GRÄNGESBERG
ÄVESTA
UPPSALA
MUNKFORS
VÄSTERÅS
STOCKHOLM
ÖREBRO
GULLSPÅNG
MALFORS
MOTALA
BERGSBRON-HÄVET
LINKÖPING
UDDEVALLA
VARGÖN
TROLLHÄTTAN
LILLA EDET
JÖNKÖPING
GÖTEBORG
BORÅS
VÄSTERVIK
VISBY
SLITE
VARBERG
ÄTRAFORS
YNGERED SFORS
VÄXJÖ
HALMSTAD
LAHOLM
KARSEFORSEN
SKOGABY
KNÄRED
BASSALT
MAJENFORS
KALMAR
KARLSHAMN
HÄLSINGBORG
COPENHAGEN
MALMÖ

CAPACITIES - KW
150,000
50,000
1000
10,000
100,000

Names of power stations of less than 10,000 kw capacity are shown only when located in important towns.

0 20 40 60 80 100
MILES

NORWAY
DENMARK
GULF OF BOTHNIA
BALTIC SEA
FINLAND

MAP NO. 573 JUNE 19, 1942

DRAWN IN THE GEOGRAPHY DIVISION, O.S.S.

APPENDIX XIII

LIST OF PUBLIC AND PRIVATELY OWNED POWER STATIONS IN SWEDEN, 1938

City	Owner of Plant	Capacity K.w.	Type	Consumers' supply Phase	Cycle	Voltage	Class of Plant
Mansbo	Alby Nya Kloratfabriks AB.	8,500	D.C.	-	-	220	Hydro
			A.C.	3	50	500	
Arbrå	AB. Arbrå Kraftverk	4,500	A.C.	3	50	110/220	Hydro
	" "	100					Purchased
Avesta Storfors	Avesta Jernverks AB.	8,350	A.C.	3	50	220	Hydro
	"	870					Purchased
Virsbo	AB. Bergslagens Gemensamma Kraftforvaltning	500	A.C.	3	50	525	Hydro
Seglingsberg	"	600	A.C.	3	50	525	Hydro
Ramnäs	"	2,300	A.C.	3	50	525	Hydro
	"	6,000					Purchased
Forshuvud	Stora Kopparbergs Bergslags AB.		A.C.	3	50	220	Hydro
Bullerforsen	"		A.C.	3	50	220	Hydro
Kvarnsveden	"		A.C.	3	50	-	Hydro
Domnarvet	"		A.C.	3	50	-	Hydro
Gysinge	"		A.C.	3	50	-	Hydro
Söderfors	"		A.C.	3	50	-	Hydro
Falu Kopparverk	"		A.C.	3	50	-	Hydro
Tanger ..	"		A.C.	3	50	115	Hydro
Lindesnäs	"		A.C.	3	50	115	Hydro
Svartnäs	"		A.C.	3	50	115	Hydro
ovre Svartnäs	"		A.C.	3	50	220	Hydro
nedre Skutskarsfabriker	"		A.C.	3	50	525	Steam
Total K.W.	"	51,510					
Bergvik	Bergvik Och Ala Nya AB.	1,600	A.C.	3	50	110/220	Hydro
Holjefors	"	7,000	A.C.	3	50	110/220	Hydro
Vifors	"	1,700	A.C.	3	50	110/220	Hydro
Sandarne Sulfatfabrik	"	1,400	A.C.	3	50	110/220	Steam
	"	500					Purchased
Knappstadsflagan	Billeruds AB.	1,100	A.C.	3	50	-	Hydro
Brandströmen	"	750	A.C.	3	50	-	Hydro
Haga	"	1,100	A.C.	3	50	-	Hydro
Fors	"	720	A.C.	3	50	-	Hydro
Hillringsberg	"	420	A.C.	3	50	-	Hydro
Brattne	"	1,325	A.C.	3	50	-	Hydro
Jössefors övre	"	1,435	A.C.	3	50	-	Hydro
Jössefors nedre	"	3,100	A.C.	3	50	-	Hydro
Borgvik	"	420	A.C.	3	50	-	Hydro
Charlottenberg	"	400	A.C.	3	50	-	Hydro
Torsby övre	"	90	A.C.	3	50	-	Hydro
Torsby nedre	"	176	A.C.	3	50	-	Hydro
Gruvon	"	5,500	A.C.	3	50	-	Steam
Kyrkebyn	"	1,600	A.C.	3	50	-	Steam
Billerud	"	1,300	A.C.	3	50	-	Steam
Slottsbron	"	1,000	A.C.	3	50	-	Steam
	"	940					Purchased
Högforsen	Björkå AB.		A.C.	3	50	127/220	Hydro
Offer I	"		A.C.	3	50	110/190	Hydro
Offer II	"		A.C.	3	50	127/220	Hydro
Lugnvik	"		A.C.	3	50	110/190	Steam
Total K.w	"	2,840					
	"	2,200					Purchased
Bofors	AB. Bofors		A.C.	3	50	525	Hydro
Björkborn	"		A.C.	3	50	525	Hydro
Total K.w	"	20,300					
Bygdsiljum	Bygdsiljums Elektriska Kraft AB.	235	A.C.	3	50	220/380	Hydro
Andersfors	"	70	A.C.	3	50	127/220	Hydro
Dejefors	Dejefors Elektriska Kraft AB.	10,300	A.C.	3	50	110/220	Hydro
Frykfors	"	3,200	A.C.	3	50	110/220	Hydro
Semla	Fagersta Bruks AB.		A.C.	3	50	110/190	Hydro
Fagersta	"		A.C.	3	50	110/190	Hydro
Uddnas	"		A.C.	3	50	110/190	Hydro
Västanfors	"		A.C.	3	50	110/190	Hydro
Total K.w.	"	3,650					
	"	3,600					Purchased

Private and State

City	Owner of Plant	Capacity K.w.	Type	Consumers' supply Phase	Cycle	Voltage	Class of Plant
Finspong	Finspongs Metallverks AB.	1,100	A.C.	3	50	110/220	Hydro
Ramninge	"	500	A.C.	3	50	110/220	Hydro
	"	3,500					Purchased
Forsse	Graningeverkens AB.	15,000	A.C.	3	50	220	Hydro
Ramsele	"	80	A.C.	3	50	127	Hydro
Stensatter	"	130	A.C.	3	50	220	Hydro
	"	-					Purchased
Slite	AB. Skandinaviska Elektricitetsverk	8,400	A.C.	3	50	127/220	Steam
Gottne I	Gottne Yttersels Elektriska AB.	600	A.C.	3	50	127/220	Hydro
Lernbo	Grängesbergs Gruv- AB.	3,500	A.C.	3	50	110/220	Hydro
Hellsjön	"	1,860	A.C.	3	50	110/220	Hydro
Enkullen	"	.430	A.C.	3	50	110/220	Hydro
Grängesberg	"	8,350	A.C.	3	50	110/220	Steam
	"	6,000					Purchased
Gullspångskraftverk	Kraft AB. Gullspång Munkfors	21,500	A.C.	3	50	-	Hydro
Atorpskraftverk	"	8,500	A.C.	3	50	-	Hydro
	"	2,000					Purchased
Hammarforsen	Hammarforsens Kraft AB.	20,000	A.C.	3	50	220	Hydro
Wilforsen	"	2,150	A.C.	3	50	127	Hydro
	"	-					Purchased
Elvestorp	Hellefors Bruks AB.	2,400	A.C.	3	50	110/220	Hydro
Rockesholm	"	1,800	A.C.	3	50	110/220	Hydro
Blanka	Hellefors Bruks AB.	1,600	A.C.	3	50	110/220	Hydro
Hallefors	Hellefors Bruks AB.	1,000	A.C.	3	50	110/220	Steam
Guldsmedshyttan	"	1,550	A.C.	3	50	110/220	Steam
Other stations (15)	"	5,595	A.C.	3	50	110/220	-
	"	1,400					Purchased
Baggbole	Holmsunds AB.	1,150	A.C.	3	50	110/190	Hydro
Obbola	"	900	A.C.	3	50	110/190	Steam
Holmsund	"	1,400	A.C.	3	50	110/190	Steam
		800					Purchased
Huskvarna	Husqvarna Vapenfabriks AB.		A.C.	3	50	110/190	
Total K.w.	"	4,290					
	"	-					Purchased
Hafreström	Hafreströms AB.	340	D.C.	-	-	220	Steam
		3,000	A.C.	3	50	380	Hydro
	"	300					Purchased
Pappersfallet	AB. Iggesunds Bruk	1,100	A.C.	3	50	525	Hydro
Järnverksfallet	"	1,300	A.C.	3	50	200/500	Hydro
Sagfallet	"	1,350	A.C.	3	50	1,730	Hydro
Cellulosafabriken	"	1,600	A.C.	3	50	500	Steam
	"	700					Purchased
Klippan	AB Klippans Finpappersbruk	1,440	A.C.	3	50	400	Hydro Steam
Forsmollan	"	390	A.C.	3	50	5,000	Hydro
	"	900					Purchased
Knutsbro	AB. Knutsbro	1,200	A.C.	3	50	6,000	Hydro
Ojebro	Kraftstation	3,300	A.C.	3	50	5,800	Hydro
Hovetorp	"	1,400	A.C.	3	50	3,300	Hydro
Norrsundet	Kopparbergs och Hofors Sagverks AB.	2,600	A.C.	3	50	5,000	Hydro
	"	500					Purchased
Karskar	Korsnas Sagverks AB.	8,800	A.C.	3	50	110	Steam
Edsele	Kramfors AB.	10,000	A.C.	3	50	127/220	Hydro
Kramfors	"	4,600	A.C.	3	50	127/220	Steam
	"	-					Purchased
Krångede	Krångede AB.	70,000	A.C.	3	50	77,000	Hydro
Lanforsen	Stockholms Elektricitetsverk och Sandviken Jernverks AB.	27,000	A.C.	3	50	6,000	Hydro
	"	1,700					Purchased
Kiruna	Luossavaara Kiirunavaara AB.	3,000	A.C.	3	25	2,100	Steam
			A.C.	3	60	110	
Malmberget		1,200	A.C.	3	25	110	Steam
			D.C.	-	-	2x250	
		11,000					Purchased
Ormnäs	Staten	-	A.C.	3	50	5,000	Hydro
Odeshög	"	160	A.C.	3	50	750	-
Borensberg	"	2,597	A.C.	3	50	380	Hydro
Hattorp	"	350	A.C.	3	50	380	Hydro
Starketorp	"	130	A.C.	3	50	380	Hydro
Motala	"	500	A.C.	3	50	380	Diesel
	"	4,273					Purchased
Ebbes	Munkfors AB.	1,950	A.C.	3	50	110/127	Hydro
Munkfors	"	-	A.C.	3	50	110/127	Steam
Aspa	"	140	A.C.	3	50	110/127	Hydro
Aspa Sulfatfabrik	"	936	A.C.	3	50	110/127	Steam
Olshammar	"	456	A.C.	3	50	110/127	Steam
	"	550					Purchased

Private and State (Cont.)

City	Owner of Plant	Capacity K.w.	Type	Consumers' supply Phase	Cycle	Voltage	Class of Plant
Munksund	Munksunds AB	4,000	A.C.	3	50	-	Steam
Klarafors	AB. Molnbacka-Trysil		A.C.	3	50	500	Hydro
Forshaga	"		A.C.	3	50	500	Hydro
Klarafors	"		A.C.	3	50	500	Steam
Total K.w	"	2,300					
	"	9,265					Purchased
Hopparhyttan	Nora Bergslags Elektriska AB.	-	A.C.	3	50	467	Hydro
Rastalvskvarn	"	-	A.C.	3	50	467	Hydro
Vaatgothyttefors	"	-	A.C.	3	50	3,300	Hydro
Striberg	Elektriska AB.	-	A.C.	3	50	9,000	Steam
Avesta-Lillfors	Norbergs Elektriska AB.	1,500	A.C.	3	50	190/220	Hydro
Karrgruvan	"	345	A.C.	3	50	190/220	Diesel
	"	-					Purchased
Sikfors	Sikfors Kraft AB.	5,000	A.C.	3	50	220/380	Hydro
		1,300					Purchased
Nedansjö	Skönviks Aktie-Bolag	5,000	A.C.	3	50	127/220	Hydro
Matfors	"	1,860	A.C.	3	50	127/220	Hydro
Skönvik	"	2,400	A.C.	3	50	127/220	Steam
Ortviken	"	1,400	A.C.	3	50	127/220	Steam
		2,000					Purchased
Klinte	AB. Skandinaviska Elektricitetsverket	2,000	A.C.	3	50	127/220	Hydro
Brunnshult	"	1,200	A.C.	3	50	127/220	Hydro
Stalpet	"	800	A.C.	3	50	127/220	Hydro
Aneby	"	200	A.C.	3	50	127/220	Hydro
Wisskvarn	"	200	A.C.	3	50	127/220	Hydro
Adelfors	"	100	A.C.	3	50	127/220	Hydro
Brannebro	"	90	A.C.	3	50	127/220	Hydro
Anestad	"	75	A.C.	3	50	127/220	Hydro
	"	1,600					Purchased
Trollhättan	Statens Vattenfallsverk	130,000	A.C.	3	25	110/220	Hydro
			A.C.	3	50	110/220	
		300	D.C.	-	-	110/220	
Lilla Edet	"	26,000	A.C.	3	25	110/220	Hydro
Vargön	"	15,000	A.C.	3	25	110/220	Hydro
			A.C.	3	50	110/220	
Floda	"	400	A.C.	3	50	110/220	Hydro
Älvkarleby	"	70,000	A.C.	3	50	220	Hydro
Näs	"	5,200	A.C.	3	50	220	Hydro
Motala	"	14,000	A.C.	3	50	220	Hydro
Malfors	"	20,000	A.C.	3	50	220	Hydro
Nykvarn	"	1,000	A.C.	3	50	220	Hydro
Stora	"	300	A.C.	3	50	220	Hydro
Axbergshammar		160	A.C.	3	50	220	Hydro
Angreservcentralen, Västerås	"	90,000	A.C.	3	50	110/220	Steam
Porjus	"	70,000	A.C.	1	15	220/380	Hydro
			A.C.	3	25	220/380	
			A.C.	3	50	220/380	
Norrfors	"	26,000	A.C.	3	50	220/380	Hydro
Sillre	"	8,000	A.C.	3	50	220/380	Hydro
Stadsforsen etc.	"	850	A.C.	3	50	220/380	Hydro
Rundbacken	Sunds AB.	2,400	A.C.	3	50	6,000	Hydro
Lagfors	"	500	A.C.	3	50	6,000	Hydro
Svartvik	Travaru AB. Svartvik	4,980	A.C.	3	50	-	Steam
Trängfors	AB. Svenska Metallverken	1,800	A.C.	3	50	110/220	Hydro
Skultuna	"	980	A.C.	3	50	110/220	Hydro
							Steam
Västerås	"	500	A.C.	3	50	110/220	Steam
		1,100					Purchased
Bro	Sydsvenska Kraft AB.		A.C.	3	50	20,000	Hydro
Majenfors	"		A.C.	3	50	50,000	Hydro
Bassalt	"		A.C.	3	50	50,000	Hydro
Knared övre	"		A.C.	3	50	132,000	Hydro
Knared nedre	"		A.C.	3	50	132,000	Hydro
Skogaby	"		A.C.	3	50	50,000	Hydro
Karseforsen	"		A.C.	3	50	132,000	Hydro
Laholm	"		A.C.	3	50	132,000	Hydro
Torsebro	"		A.C.	3	50	50,000	Hydro
Hemsjö övre	"		A.C.	3	50	40,000	Hydro
Hemsjö nedre	"		A.C.	3	50	6,600	Hydro
Verperyd	"		A.C.	3	50	20,000	Hydro
Brantafors	"		A.C.	3	50	20,000	Hydro
Hornsö	"		A.C.	3	50	45,000	Hydro
Blankaström	"		A.C.	3	50	45,000	Hydro
Högsby	"		A.C.	3	50	45,000	Hydro

Private and State (Cont.)

City	Owner of Plant	Capacity K.w.	Type	Consumers' supply Phase	Cycle	Voltage	Class of Plant
Finsjö Övre	Sydsvenska Kraft AB.		A.C.	3	50	1,500	Hydro
Finsjö nedre	"		A.C.	3	50	45,000	Hydro
Malmö	"		A.C.	3	50	50,000	Heat
Karlshamn	"		A.C.	3	50	6,600	Heat
Total K.w.	"	137,000					
	"	6,000					Purchased
Rottle	Jönköping and Huskvarna	3,900	A.C.	3	50	3,300	Hydro
		400					Purchased
Munkfors	Uddeholms AB.	21,120	A.C.	3	50	220	Hydro
Forshult	"	17,120	A.C.	3	50	220	Hydro
			A.C.	3	25	220	
Krakerud	"	10,160	A.C.	3	50	220	Hydro
			A.C.	3	25	220	
Stjern	"	660	A.C.	3	25	67	Hydro
Hagfors	"	2,500	A.C.	3	25	230	Hydro
Malta	"	3,040	A.C.	3	25	110	Hydro
Knon	"	3,040	A.C.	3	25	110	Hydro
Main	"	3,040	A.C.	3	25	110	Hydro
Blixbol	"	1,050	A.C.	3	50	115	Hydro
Snarkil	"	600	A.C.	3	50	110	Hydro
Karlsfors	"	350	A.C.	3	50	115	Hydro
Torp	"	168	A.C.	3	50	110	Hydro
Storforssystemet	"	2,141	A.C.	3	50	-	Hydro
Other stations	"	2,233	A.C.	3	50	-	Hydro
		449	D.C.	-	-	-	
Skoghall	"	5,200	A.C.	3	50	-	Steam
		-					Purchased
Mockfjärd	Vesterdalelfvens Kraft AB.	12,000	A.C.	3	50	6,600	Hydro
Viskafors	Rydboholms AB. Borås Wafveri AB. Rydahls Manufaktur AB. Skandinaviska Gummi AB. and Kinnaströmas Vaveri AB.	4,100	A.C.	3	50	220/380	Hydro
Kungsfors	"	2,610	A.C.	3	50	220/380	Hydro
Rydal	"	700	A.C.	3	50	220/380	Hydro
Stavsnäs	"	1,000	A.C.	3	50	220/380	Hydro
	"	-					Purchased
Atrafors	Ingeredfors Kraft AB.	10,500	A.C.	3	50	110/190	Hydro
Ingeredfors	"	8,800	A.C.	3	50	127/220	Hydro
Skygga	"	100	A.C.	3	50	110/190	Hydro
Boberg	"	90	A.C.	3	50	127/220	Hydro
Varberg	"	5,000	A.C.	3	50	110/190	Steam
		-					Purchased
Arboga	Arboga	110	D.C.	-	-	2x110	Hydro
		151	A.C.	3	50	110/220	Hydro
		400					Purchased
Salboda	Arvika Elektriska AB.	900	A.C.	3	50	110/190	Hydro
Jarpforsen	"	900	A.C.	3	50	110/190	Hydro
Central station	"	800	A.C.	3	50	110/190	Diesel
	"	383					Purchased
Only transformer	Askersund purchases from Motala	-					Purchased
Only transformer	Avesta purchases from Avesta Jernverks AB.	-					Purchased
Ljusåå	Boden	440	A.C.	3	50	220/380	Hydro
Forsbacken	"	90	A.C	3	50	220/380	Hydro
Holsvattnet	"	180	A.C.	3	50	220/380	Hydro
		150					Purchased
Only transformer	Borensberg purchases from Motala	-					Purchased
Borgholm	AB. Borgholms Elektricitetsverk	150	D.C.	-	-	220	Diesel
	"	75					Purchased
Only transformer	Borlange I purchases from Stora Kopparbergs Bergslags AB.	400					Purchased
Haby	Borås	3,800	A.C.	3	50	127/220	Hydro
Hulta	"	1,900	A.C.	3	50	127/220	Hydro
Hagfarda	"	1,430	A.C.	3	50	127/220	Hydro
Axelfors	"	2,500	A.C.	3	50	127/220	Hydro
Borås	"	4,300	A.C.	3	50	127/220	Steam
							Purchased
Only transformer	Brannkyrka purchases from Stockholm	1,932					Purchased
Djursholm	Djursholm	380	A.C.	3	50	127/220	Diesel
Norrviken	"	80	A.C.	3	50	127/220	Hydro
	"	665					Purchased
Only transformer	Eksjö purchases from Smålands Kraft AB.	700					Purchased
Only transformer	Enköping purchases from Alvkarleby	1,300					Purchased

Private and State (Cont.)

City	Owner of Plant	Capacity K.w.	Type	Consumers' supply Phase	Cycle	Voltage	Class of Plant
Eskilstuna	Eskilstuna	1,200	A.C.	3	50	127/220	Steam
	"	5,500					Purchased
Only transformer	Eslöv purchases from Sydsvenska Kraft AB.	1,000					Purchased
Falkenberg	Falkenberg	2,251	A.C.	3	50	220/380	Hydro and Diesel
	"	1,000					Purchased
Sundborn	Falu Elektriska Belysnings AB.	1,680	A.C.	3	50	127/220	Hydro
Falun	"	372	A.C.	3	50	127/220	Diesel
		426	D.C.	-	-	127/220	
	"	950	A.C.				Purchased
		45	D.C.				Purchased
Filipstad	Filipstad	282	D.C.	-	-	127/220	Hydro
	"	132					Purchased
Only transformer	Granna purchases from Sodra Vetterns Kraft AB.						
Strömdalen	Gavle	730	A.C.	3	50	127/220	Hydro
Strömsborg	"	280	A.C.	3	50	127/220	Hydro
Tolffors	"	1,200	A.C.	3	50	127/220	Hydro
Åbyfors	"	240	A.C.	3	50	127/220	Hydro
Gävle	"	1,000	A.C.	3	50	127/220	Diesel
		-	D.C.	-	-	127/220	
		2,000					Purchased
Göteborg	Göteborg	13,000	A.C.	3	25	127/220	Steam
		29,000					Purchased
Halmstad	Halmstad	750	D.C.	-	-	127/220	Steam
		1,140	A.C.	3	50	127/220	Steam
		3,510					Purchased
Hudiksvall	Hudiksvall	120	D.C.	-	-	110/190	Steam
		500	A.C.	3	50	110/190	Steam
		870					Purchased
Only transformer	Huskvarna purchases from Södra Vetterns Kraft AB.	400					Purchased
Hälsingborg	Hälsingborg	819	D.C.	-	-	127/220	Steam
		630	A.C.	3	50	127/220	Diesel
		8,075					Purchased
Gadea övre	Härnösand,	70	A.C.	3	50	220	Hydro
Gadea nedre	"	160	A.C.	3	50	220	Hydro
Kronholmen	"	270	D.C.	-	-	220	Diesel
		600	A.C.	3	50	220	
	"	1,200					Purchased
Only transformer	Hasselholm purchases from Sydsvenska Kraft AB.	400					Purchased
Edeskvarna	Jönköping	1,000	A.C.	3	50	220/380	Hydro
Jönköping	"	500	D.C.	-	-	220/380	Steam
	"	2,400					Purchased
Kalmar	Kalmar	596	D.C.	-	-	127/220	Diesel
		710	A.C.	3	50	127/220	
		930					Purchased
Karlshamn	Karlshamn	274	D.C.			2x110	Steam
		615					Purchased
Karlskrona	Karlskrona	400	D.C.	-	-	2x220	Diesel
		670	A.C.	3	50	127/220	
		1,000					Purchased
Karlstad	Karlstad	548	D.C.	-	-	2x220	Steam and
		1,000	A.C.	3	50	127/220	Diesel
		3,500					Purchased
Katrineholm	Katrineholms Elektricitetsverk	534	A.C.	3	50	3x220	Generator
			D.C.	-	-	2x220	Gas Motor
		1,850					Purchased
Only transformer	Kopparberg purchases from Bergslagens Gemensamma Kraftforvaltning	150					Purchased
Kristinehamn	Kristinehamn	170	D.C.	-	-	110	Diesel and
	"	400	A.C.	3	50	3x220	Steam
	"	1,750					Purchased
Only transformer	Kungsbacka purchases from Tngredsfors Kraft AB.	225					Purchased
Köping	Köping	220	A.C.	3	50	3x220	Diesel
Ekeby	"	430	A.C.	3	50	3x220	Hydro
	"	365					Purchased
Only transformer	Laholm purchases from Sydsvensk. Kraft AB.	340					Purchased
Lidingö	Lidingö	-	A.C.	3	50	3x220	Diesel
Only transformer	Lidköping purchases from Kraft AB. Gullspång-Munkfors	1,560					Purchased

Private and State (Cont.)

City	Owner of Plant	Capacity K.w.	Type	Consumers' supply Phase	Cycle	Voltage	Class of Plant
Ringaby	Lindesberg	540	A.C.	3	50	127/220	Hydro
		400					Purchased
Odensfors	Linköping	2,080	A.C.	3	50	220/380	Hydro
Svärtefors	"	2,840	A.C.	3	50	220/380	Hydro
Linköping	"	4,500	A.C.	3	50	220/380	Steam and Diesel
	"	-					
Ljungby	Ljungby	1,445	A.C.	3	50	2x220	Hydro
Only transformer	Luleå purchases from Sikfors Kraft AB. and Porjus Kraftverk	1,254					Purchased
Lund	Lund	1,515	D.C.	-	-	2x120	Diesel
	"	2,500					Purchased
Lysekil	Lysekil	155	D.C.	-	-	2x110	Diesel
	"	422					Purchased
Langangen	Statens Vattenfallsverk, Älvkarleby,						
Only transformer	Stockholm	50					Purchased
Malmö	Malmö	4,800	D.C.	-	-	2x220	Steam
	"	13,500					Purchased
Only transformer	Mariestad purchases from Kraft AB. Gullspång-Munkfors	550					Purchased
Marstrand	Marstrand	105	D.C.	-	-	2x120	Diesel
	"	155					Purchased
Mjölby	Mjölby	1,300	A.C.	3	50	3x220	Hydro
Motala	Motala Ströms Kraft AB.	-					Purchased
only transformer							
Mölndal	Yngeredsfors						
Only transformer	Kraft AB.	-					Purchased
Hagby	Nora	380	A.C.	3	50	3x110	Hydro and Diesel
	"	300					Purchased
Norrköping	Norrköping	10,500	A.C.	3	50	220/380	Steam
		6,750					Purchased
Nyköping	Nyköping	1,010	D.C.	-	-	127/220	Hydro
		1,000					Purchased
Nynäshamn	Nynäshamns Elektriska AB.	120	A.C.	3	50	3x220	Diesel
	"	425					Purchased
Oskarshamn	Oskarshamn	100	D.C.	-	-	127/220	Diesel
		400	A.C.	3	50	127/220	
		1,000					Purchased
Oxelösund	Trafik-AB. Grängesberg-Oxelösunds						
Only transformer	Järnvägar	200					Purchased
Only transformer	Piteå purchases from Porjus Kraftverk	400					Purchased
Rönneby	Rönneby	60	D.C.	-	-	2x220	Diesel
		290	A.C.	3	50	127/220	
		250					Purchased
Roslags-Näsby	Näsby Elektriska Distributionsforening						
only transformer	u.p.a.	.160					Purchased
Rasunda	Rasunda Forstads AB.	838	-	-	-	-	Diesel
Sala	Sala	-	A.C.	3	50	127/220	Diesel
	"	1,000					Purchased
Sandviken	Yttre Sandvikens Belysnings AB.	500					Purchased
Only transformer							
Saltsjöbaden	Saltsjöbadens Elektricitetsverk	100	D.C.	-	-	3x220	Diesel
	"	475					Purchased
Skara	Skara	67	A.C.	3	25	220/380	Diesel
	"	750					Purchased
Finnfors	Skellefteå	18,500	A.C.	3	50	220/380	Hydro
Krangfors	"	12,500	A.C.	3	50	230/380	Hydro
	"	2,700					Purchased
Only transformer	Skeninge purchases from Motala Kraftverk	200					Purchased
Skövde	Skövde	254	D.C.	-	-	2x220	Diesel
		1,200					Purchased
Skellefteå	Skellefteå	1,040	A.C.	3	50	110/190	Hydro and Diesel
	"	400					Purchased
Nylandsan & Kallsjön	Skellefteå landskommun	325	A.C.	3	50	127/220	Hydro
	"	80					Purchased
Stockholm	Stockholm	26,500	A.C.	3	25	3x220	Steam
		68,000	A.C.	3	50	3x220	
Untraverket	"	22,500	A.C.	3	25	3x220	Hydro
		19,000	A.C.	3	50	3x220	Hydro
	"	30,000					Purchased
Stocksunds kraft-station, only transformer	Stockholm-Rimbo Järnvägs AB. purchases from Älvkarleby kraftverk	600					Purchased

Private and State (Cont.)

City	Owner of Plant	Capacity K.w.	Type	Consumers' supply Phase	Cycle	Voltage	Class of Plant
Stocksunds köping only transformer	Stocksunds köping purchases from Älvkarleby kraftverk	536					Purchased
Storvik	Storviks Elektriska Belysnings AB.	500	A.C.	3	50	127/220	Hydro
	"	700					Purchased
Strömstad	AB. Skandinaviska Elektricitetsverket	88	A.C.	3	50	127/220	Diesel
	"	350					Purchased
Lofön	AB. Per Holms Elektricitetsverk	1,100	A.C.	3	50	3x220	Hydro
Sundbyberg	Sundbyberg	1,475	A.C.	3	50	220/380	Diesel
	"	2,604					Purchased
Sundsvall	Sundsvall	464	D.C.	-	-	127/220	Steam
		1,400	A.C.	3	50	127/220	
	"	2,335					Purchased
Skarped	AB. Rottneros Bruk	8,000	A.C.	3	50	220/380	Hydro
Rottna	"	2,150	A.C.	3	50	220/380	Hydro
Back	"	400	A.C.	3	50	220/380	Hydro
Rinnefors	"	250	A C.	3	50	220/380	Hydro
	"	8,000					Purchased
Säter	Säter	35	A.C.	3	50	110/190	Diesel
	"	130					Purchased
Söderhamn	Söderhamn	370	A.C.	3	50	110/190	Diesel
		1,320					Purchased
Narebo	Belysnings AB. Tomten	185	A.C.	3	50	110/190	Hydro
Nybble	"	100	A.C.	3	50	110/190	Hydro
	"	100					Purchased
Only transformer	Södertälje purchases from Älvkarleby Kraftverk	2,594					Purchased
Tidaholm and Baltak	Tidaholm	270	A.C.	3	50	220/380	Hydro and steam
	"	-					Purchased
Lunne	Kraft-AB. Nykvärn Tidan	280	A.C.	3	50	220/380	Hydro
Nykvärn	"	240	A.C.	3	50	220/380	Hydro
Tranås	Tranås	650	A.C.	3	50	127/220	Hydro
Forsnäs	"	440	A.C.	3	50	127/220	Hydro
Olstorp	"	300	A.C.	3	50	127/220	Hydro
Asvallehult	"	200	A.C.	3	50	127/220	Hydro
Vriggebo	"	105	A.C.	3	50	127/220	Hydro
Trelleborg	Trelleborg	525	A.C.	3	50	110/190	Diesel
		153	D.C.	-	-	110/190	
		900					Purchased
Only transformer	Trollhattan purchases from Trollhätte kraftverk	869					Purchased
Uddevalla	Uddevalla	135	A.C.	3	50	3x220	Hydro and
		450	D.C.	-	-	2x220	Diesel
		1,135					Purchased
Ulricehamn	Ulricehamn	90	D.C.	-	-	2x220	Raw oil motor
	"	450					Purchased
Klabbole	Umeå	6,752	A.C.	3	50	110/190	Hydro
		7,500					Purchased
Uppsala	Uppsala	1,325	D.C.	-	-	3x220	Diesel
		5,400					Purchased
Vadstena only transformer	Motala Ströms Kraft AB.	-					Purchased
Valdemarsvik	C.J.Lundbergs Läderfabriks AB.	450	A.C.	3	50	127/220	Hydro and steam
	"	425					Purchased
Only transformer	Vara köping	200					Purchased
Varberg only transformer	Yngeredsfors Kraft AB.	-					Purchased
Only transformer	Waxholm	130					Purchased
Vellinge only transformer	AB. Hvellingeortens Elektricitetsverk	750					Purchased
Visby	Visby	625	D.C.	-	-	2x220	Diesel
		320	A.C.	3	50	220/380	
	"	235					Purchased
Vänersborg only transformer	AB. Vänersborgs Elektricitetsverk purchases from Trollhätte kraftverk	1,500					Purchased
Västerås	Västerås	782	D.C.			2x220	Hydro
	"	2,018					Purchased
Växjö	Växjö	454	D.C.	-	-	2x110	Steam
	"	750					Purchased
Ystad	Ystad	281	D.C.	-	-	2x220	Diesel
	"	1,150					Purchased

Private and State (Cont.)

City	Owner of Plant	Capacity K.w.	Type	Consumers' supply Phase	Cycle	Voltage	Class of Plant
Only transformer	Ahus purchases from Sydsvenska Kraft AB.	300					Purchased
Hanefors	Åsal	360	A.C.	3	50	220/380	Hydro
Korsbyn	"	520	A.C.	3	50	220/380	Hydro
Nygård	"	150	A.C.	3	50	220/380	Hydro
		-					Purchased
Kvärna	Västra Jämtlands Kraft AB.	200	A.C.	3	50	127/220	Hydro
Slagsa	"	300	A.C.	3	50	127/220	Hydro
Angelholm only transformer	Angelholm purchases from Sydsvenska Kraft AB.	1,180					Purchased
Odeshög only transformer	Motala Strömas Kraft AB.	-					Purchased
Örebro	Örebro	802	A.C.	3	50	220/380	Diesel
Skeback	"	36	D.C.	-	-	2x220	Hydro
Örnsköldsvik	Örnsköldsvik	222	D.C.	-	-	2x110	Diesel
		650					Purchased
Östersund	Östersund	435	A.C.	3	60	3x190	Diesel
		2,050					Purchased

APPENDIX XIV

High Tension Lines and Transformer Stations of the State Power System, 1940

HIGH TENSION LINES

	State Owned Lines					Subscribers Lines (Cooperatives, etc.)	
	Trunk Lines 130 and 220 kv.	Primary Lines 50 and 60 kv.	Secondary Lines 10-40 kv.	Tertiary Lines 10-40 kv.	Total	10-70 kv.	1.5-6 kv.
Central Block	511	1,121	3,216	251	5,099	664	8,248
Norrland Block	674	106	351	175	1,307	1,414	297
TOTAL	1,265	1,227	3,567	426	6,406	2,078	8,545

TRANSFORMER STATIONS

	Secondary Stations for 50, 70, 100, 130 and 220 kv.			State Owned Distribution Stations for 10, 20, 40, 50, 220 kv.	Tertiary Stations		
	State Owned Stations	Subscriber Stations	Total				Total
Central Block	42	6	48	3	410	359	769
Norrland Block	11	2	13	-	20	12	32
TOTAL	53	8	61	3	430	371	801

Source: Statens Vattenfallsverk, 1941.

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APPENDIX

DISTRIBUTION OF MUNICIPAL WATER SUPPLY SYSTEMS IN SWEDEN-BY COUNTY

Key to Column Numbers

1. Communities with municipal water supply.
2. Communities without municipal water supply.
3. Total inhabitants in urban communities with municipal water supply.
4. Total inhabitants in urban communities without municipal water supply.
5. Per cent of urban dwellers living in communities with municipal water supply.
6. Per cent of urban dwellers living in communities without municipal water supply.

Explanation of Terms

Län - county
Städer - cities
Köpingar - small market towns
Municipalsamhällen - municipal communities
De fyra största städerna- four largest cities

	1	2	3	4	5	6
De fyra största städerna	4		1,042,805		100	
Stockholms län						
Städer	9		52,691			
Köpingar	1		13,260			
Municipalsamhällen	11	12	27,261	11,849	86,3	13,7
Summa	21	12	93,212	11,849	86,-	13,-
Uppsala län						
Städer	2	-	12,658			
Köpingar		1		1,562		
Municipalsamhällen		1		426		
Summa	2	2	12,658	1,988	95,-	1,-
Södermanlands län						
Städer	7		69,881			
Köpingar	1		1,150			
Municipalsamhällen	4	2	7,782	2,665		
Summa	12	2	78,813	2,665	96,-	3,-
Östergötlands län						
Städer	5	1	52,552	1,772		
Köpingar	1		2,731			
Municipalsamhällen	5	1	9,704	469		
Summa	11	2	64,986	2,241	96,-	3,-
Jönköpings län						
Städer	7	1	68,804	9,084		
Köpingar	1	1	1,171	1,080		
Municipalsamhällen	5	1	8,158	1,255		
Summa	13	3	78,736	12,216	86,-	13,-
Kronobergs län						
Städer	2		15,021			
Köpingar	1	2	2,727	2,108		
Municipalsamhällen	3	5	5,828	3,831		
Summa	6	7	23,576	5,939	79,-	20,-
Kalmar län						
Städer	6		52,879			
Köpingar	2	3	2,551	1,031		
Municipalsamhällen	2	2	2,292	1,122		
Summa	10	7	57,722	5,156	91,-	8,-
Gotlands län						
Städer	1		11,673			
Köpingar		1		1,926		
Municipalsamhällen		1		560		
Summa	1	2	11,673	2,486	82,-	17,-
Blekinge län						
Städer	1		17,911			
Köpingar		1		91		
Summa	1	1	17,911	91	99,-	0,-
Kristianstads län						
Städer	1		27,118			
Köpingar	1	1	2,857	7,839		
Municipalsamhällen	1	20	7,145	19,133		
Summa	9	21	37,120	26,972	58	41,-
Malmöhus län						
Städer	7	1	111,959	1,917		
Köpingar		3		6,111		
Municipalsamhällen	1	18	1,070	22,338		
Summa	8	22	146,049	30,356	83,-	16,-
Hallands län						
Städer	5		18,563			
Municipalsamhällen	1		3,012			
Summa	6		31,575		100	

	1	2	3	4	5	6
Göteborgs o. Bohus län						
Städer	5	1	11,075	1,219		
Köpingar		1		831		
Municipalsamhällen	3	12	1,865	38,113		
Summa	8	14	15,940	10,523	53,-	16,-
Älvsborgs län						
Städer	6		93,813			
Köpingar	2		3,951			
Municipalsamhällen	3	3	1,751	3,023		
Summa	11	3	102,515	3,023	97,-	2,-
Skaraborgs län						
Städer	6	1	18,130	1,307		
Köpingar	1	2	1,111	3,106		
Municipalsamhällen	1	11	2,131	6,121		
Summa	8	14	51,375	13,831	78,-	21,-
Värmlands län						
Städer	4		54,153			
Köpingar	2		3,541			
Municipalsamhällen	4	2	5,373	1,371		
Summa	10	2	63,067	1,371	97,-	2,-
Örebro län						
Städer	4		55,265			
Köpingar	2		1,792			
Municipalsamhällen	3	5	7,723	6,995		
Summa	9	5	64,780	6,995	90,-	9,-
Västmanlands län						
Städer	4		54,917			
Köpingar	1		2,521			
Municipalsamhällen	3		3,921			
Summa	8		61,362		100	
Kopparbergs län						
Städer	5		31,731			
Köpingar	1		8,967			
Municipalsamhällen	6		20,146			
Summa	12		60,844		100	
Gävleborgs län						
Städer	3		57,743			
Köpingar	3		21,782			
Municipalsamhällen		1		1,066		
Summa	8	1	79,525	1,066	98,-	1,-
Västernorrlands län						
Städer	4		39,163			
Köpingar						
Municipalsamhällen	5	3	12,734	2,168		
Summa	9	3	51,900	2,168	95,-	4,-
Jämtlands län						
Städer	1		14,186			
Köpingar	1		1,295			
Municipalsamhällen	3	1	4,648	911		
Summa	5	1	21,321	911	95,-	4,-
Västerbottens län						
Städer	2		21,556			
Köpingar	2	-	3,049			
Municipalsamhällen	-	17	7,270	22,697		
Summa	11	17	32,476	22,697	58,-	41,-
Norrbottens län						
Städer	4		26,312			
Municipalsamhällen	4	2	17,845	2,511		
Summa	8	2	44,157	2,511	94,-	5,-

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APPENDIX XVI

CHIEF GAS PRODUCING ESTABLISHMENTS

1936.

Town	Owners	Annual Make in Mill. Cu. ft.	Number of Registering Meters
Alingsås	Corporation	10.8	1,026
Kilstuna	Cor.	86.4	6,467
Eslov	Cor.	17.9	1,572
Falköping	Cor.	10.9	1,026
Falun	Cor.	25.7	1,752
Gävle	Cor.	103.2	7,293
Göteborg	Cor.	1023.6	66,193
Hälsingborg	Cor.	207.9	15,045
Härnösand	Cor.	16.2	1,354
Jönköping	Cor.	65.	5,786
Kalmar	Cor.	51.9	3,845
Karlskrona	Cor.	81.4	5,705
Karlstad	Cor.	50	4,441
Kristianstad	Cor.	50.5	3,666
Landskrona	Cor.	83.8	5,584
Lidköping	Cor.	20.1	1,727
Linköping	Cor.	62.2	5,117
Lund	Cor.	109.7	7,076
Malmö	Cor.	562.1	38,715
Mariestad	Cor.	10.8	874
Norrköping	Cor.	172.2	12,637
Nyköping	Cor.	36.7	3,133
Örebro	Cor.	134.7	10,440
Östersund	Cor.	26.9	1,762
Skara	Cor.	12.	1,554
Skövde	Cor.	20.9	2,170

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Town	Owners	Annual Make in Mill. Cu. ft.	Number of Registering Meters
Södertälje	Cor.	28.6	2,088
Stockholm	Cor.	3,313.4	162,623
Sundsvall	Cor.	29.2	2,052
Trälleborg	Cor.	38.1	3,005
Uddevalla	Cor.	32.6	2,597
Upsala	Cor.	121.8	9,019
Vänersborg	Cor.	22.5	1,578
Västerås	Cor.	71.2	6,215
Västervik	Cor.	16.2	1,713
Visby	Cor.	20.8	1,480
Ystad	Cor.	45.7	3,727
	Total	6,793.6	

Source: The Gas World Yearbook, 1936.

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APPENDIX XVII

Railroads

A. Total length of Railroads.....10,363 miles

State Owned.....6,003 miles

Private Owned-Standard gauge.....2,426 miles

Private Owned-Narrow gauge.....1,891 miles

Total Electrified.....2,757 miles

of which State Owned.....2,384.....(later figure gives 2,635 miles)

Private Owned-Standard gauge.....195

Private Owned-Narrow gauge.....179

At the end of 1939 there were 284 miles of double track on the State lines and 18 miles on the private; of the latter 11 were standard gauge and 7 were narrow.

B. Rolling Stock and Capacity 1939

	State	Private Owned Standard Gauge	Private Owned Narrow Gauge
Steam Locomotives	547	630	302
Electric Locomotives	460	27	15
Motor driven Rail Cars	120	88	96
Passenger and Mail wagons-2 axles	945	606	364
3 or 4 axles	1,238	595	356
Passenger Seating Capacity	107,739	65,631	27,812
Baggage and Freight Cars	21,513	17,951	9,634

(1) Carrying Capacity of Cars

(Swedish freight cars are rather small compared to American standards. 1,150 new cars were being built in 1940 which were designed to carry up to 20 tons, while the old cars carry between 10 and 16 tons. At

the end of 1939 there were 9,305 closed cars with a capacity of over 23 tons. None of the open cars carry more than 23 tons).

Carrying Capacity (tons)	State	Private Owned Standard Gauge	Private Owned Narrow gauge
Closed cars	119,703	44,326	17,320
Open cars	374,413	296,192	96,833

(2) Total Freight Cars by Carrying Capacity, 1939.

State Owned: all figures in short tons (first column).

Size of cars	Normal Gauge	Narrow gauge-891 meters
11.02 ton	51	5
11.02-13.22	478	57
13.22-15.42	571	
15.42-17.63	1,979	
17.63-22.04	11,863	
22.04-33.06	1,961	
33.06-44.09	181	
Iron Ore Cars		
44.09	46	
33.06	306	
38.57	3,488	

Private Owned	Normal Gauge Closed	Normal Gauge Open	Narrow Gauge Closed	Narrow Gauge Open
Under 11.02 ton	466	61	866	3,155
11.02-15.42	1,436	5,065	656	3,805
15.42-17.63	588	499	37	545
17.63-22.04	485	5,678	--	288
over 22.04	--	3,297	--	26

(3) Average Carrying Capacity per Axle

	Express Cars Total Tonnage Capacity	Express Cars per Axle	Freight Cars Closed Total (Cap.)	Freight Cars Closed per Axle	Freight Cars Open Total (Cap.)	Freight Cars Open Per Axl
State Owned	6,723	4.35	112,979	8.66	380,365	11.29

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	Total Tonnage Capacity	per Axle	Closed Total (Cap.)	per Axle	Open Total (Cap.)	per Axle
Private Owned, normal gauge	3,470	3.66	40,857	6.84	296,193	9.28
Private Owned, narrow gauge	1,896	3:31	15,424	4.91	91,831	5.61

(4) Railroad Traffic

Passenger Traffic (in thousands)	State	Private Owned Standard Gauge	Private Owned Narrow Gauge
I and II class	771.01	323.14	29.66
III class and military	49,782.31	25,263.26	11,546.11
Baggage and bicycles (tons)	83,599	13,924	4,354
Freight Traffic (tons)			
Duty free goods	24,432,634	20,605,469	5,234,594
of which			
Express, package freight	14,028,636	20,573,804	5,216,230
Lapland Ore	10,363,840	-------	-------
Live Animals	40,166	30,467	18,363

(5) Value of Railroad Network.

Includes only rolling stock, buildings and inventory for the year 1939.

State Owned	$360,098,552
Private Owned-normal gauge	122,422,243
Private Owned-narrow gauge	41,356,958

(6) Termini of the State Railroads

Stockholm.....Göteborg

Göteborg.....Malmö

Stockholm.....Malmö

Stockholm...Bräcke..Storlien (Norwegian border)

Bräcke.....Boden

Luleå.....Norwegian Border (iron ore line)

Kristinehamn...Arvidsjaur....Jokkmokk

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C. Table showing length of line, gauge, and amount electrified. Figures for 1939.

(1) Private owned Railroads-Standard Gauge

Railroad Line	Total Length	Double-Tracked	Electrified
Borås-Ulricehamn	24		
Dalslands	42		39
Grängesberg-Oxelösund	186	.4	
Göteborg-Dalarna-Gävle			
Bergslagernas	306		102
Gävle-Dala	182	2	
Södra Dalarnes	82		
Dal-Västra Värmlands	156		
Kil-Fryksdalen	50		
Lödöse-Lilla Edet	9		
Göteborg-Borås-Alvesta			
Göteborg-Borås	41		41
Borås-Alvesta	116		
Göteborg-Säro	15		
Halmstad-Nässjö	253		
Hälsingborg-Hässleholm	73		
Landskrona-Hälsingborg	36	2	
Landskrona-Lund-Trälleborg	44		
Skåne-Småland	91		
Kalmar) Sävsjöström-Nässjö)	120		
Karlskrona-Växjö-Alvesta			
Karlskrona-Växjö	70		
Växjö-Alvesta	11		
Kristianstad-Hässleholm and Östra Skånes	163		
Krylbo-Norberg	14		
Malmö-Genarp	16		

	Total Length	Double-Tracked	Electrified
Malmö Railroads			
Malmö-Simrishamn	74	.54	
Malmö-Trälleborg	18		
Trälleborg-Rydsgård	21		
Vellinge-Skanör-Falsterbo	11		
Mjölby-Hästholmen	19		
Novabergslags	107		
Nässjö-Oskarshamn	92		
Stockholm-Nynäs	34		
Stockholm-Saltsjön	11	.98	11
Stockholm-Västerås-Bergslagen	293	4	
Sölvesborg-Olofström-Almhult	44		
Uddevalla-Vänersborg-Herrljunga	57		
Varberg-Borås-Herrljunga	78		
Ystads Railroad			
Ystad-Eslöv	47		
Malmö-Ystad	39		
Ystad-Brösarp	18		
Ystad-Gärsnäs-St. Olof	25		
Börrninge Östratorp	14		
Ängelholm-Klippan	16		
(2) Private Owned, narrow gauge railroads			
(a) (1.093 meter gauge)			
Köping-Uttersberg-Riddarhyttan	37		
(b) (1.067 meter gauge)			
Blekinge coast road	127		
Halmstad-Bolmen	40		
Karlshamn-Vislanda-Bolmen			
Karlshamn-Vislanda-Bolmen	80		

	Total Length	Double-Tracked	Electrified
Hönshylte-Kvarnamåla	17		
Växjö-Tingsryd	28		
Östra Blekinge	40		
(c) (.891 meter gauge)			
Askersund-Skyllberg-Lerbäck	9		
Byvalla-Langshyttan	16		
Dala-Ockelbo-Norrsundet	53		
Eksjö-Österbymo	21		
Falkenbergs	63		
Gotlands	66		
Hjo-Stenstorp	34		
Kalmar-Berga			
Kalmar-Berga	47		
Östra Smålands	48		
Kalmar-Torsås	24		
Monsterås	43		
Ljungbyholm-Karlslunda	11		
Klintehamn-Roma	30		
Lidköpings Railroad			
Lidköping-Häkantorp	18		
Kinnekulle-Lidköping	17		
Södra-Kinnekulle	5		
Östergötlands narrow gauge railroads			
Norra Östergötlands	82		
Norrköping-Söderköping-Vikbolandet	63		
Mellersta Östergötlands	77		44
Väderstad-Skänninge-Bränninge	26		
Nordmark-Klarälven	109		101
Norsholm-Västervik-Hultsfred	144		
Slite-Roma	20		

	Total Length	Double-Tracked	Electrified
Stockholm-Roslagen			
Stockholm-Roslagen	129	7	33
Dannemora-Harg	73		
Uddevalla-Lelången	55		
Vetlanda	50		
Västergötland-Göteborg			
Västergötland-Göteborg	162		
Lidköping-Skövde and Stenstorps	43		
Mariestad-Moholm	11		
Trollhättan-Nossebro	20		
Växjö-Åseda-Hultsfred			
Växjö-Åseda-Hultsfred	71		
Östra Värends	24		
Ölands	93		
Hällefors-Frederiksberg (.802m)	49		
Nättraby-Almaryd-Älmeboda (.600m)	28		

D. Table showing Double-track Lines on State Railroads in 1939.

Line	Length (miles)
Malmö-Hässleholm	52
Stockholm-Järna	29
Stockholm-Uppsala	40
Göteborg-Alingsås	28
Örebro-Hallsberg	15
Åby-Mjölby	53
Tranås-Sävsjö	50
Ostransjö-Laxå	14
Gubbero-Almedal	1.48

E. Table Showing Electrified State Lines, 1939.

Luleå-Vassijaure border	279
Stockholm-Göteborg	288
Järna-Trälleborg	362
Katrineholm-Åby	25
Mjölby-Örebro-Krylbo	157
Falköping-Nassjö	70
Malmö-Göteborg-with sideline to Hälsingborg and Möllo	221
Hässleholm-Veinge	45
Stockholm-Ånge	301 (line completed to Bodon 1942)
Södertälje-Eskilstuna	62
Stålboga-Skebokvarn	14
Laxå-Charlottenborg	127
Örebro-Svartå	30
Tomteboda-Värtan	3
Skövde-Karlsborg	27
Uppsala-Gävle	71
Östersund-Bräcke	44
Långsele-Bräcke-Ånge	100 (now electrified to Bodon)
Olskroken-Uddevalla	53

F. TABLE SHOWING TRACK LENGTH AND MODE OF TRACTION ON CERTAIN STRATEGICALLY IMPORTANT LINES. ALL STANDARD GAUGE.

Section	Length in Miles	Traction
Narvik-Luleå	294	Electric
Boden-Haparanda	103	Steam
Boden-Bräcke	391	Electric
Bräcke-Krylbo	220	"
Krylbo-Stockholm	100	"
Älvsbyn-Piteå	32	Steam
Bastuträsk-Skelleftehamn	40	"
Vännäs-Holmsund	29	"
Mellansel-Örnsköldsvik	18	"
Ljusdal-Hudiksvall	38	"
Kilafors-Söderhamn	21	"
Stockholm-Malmö	372	Electric
Stockholm-Gävle	112	"
Malmö-Trälleborg	19	"
Stockholm-Göteborg	283	"
Gällivare-Östersund-Vansbro	707	Steam
Jörn-Arvidsjaur	47	"
Hällnäs-Storuman	104	"
Forsmo-Hoting	75	"
Göteborg-Åmål	101	Electric
Åmål-Vansbro	153	Steam
Göteborg-Malmö	186	Electric
Stockholm-Charlottenberg	268	"
Sundsvall-Östersund-Storlien	223	Electric

All lines listed above have a permissible axle load of 16 metric tons (17.62 short tons) with two exceptions: Boden-Jörn, 15.5 m. tons (17.03 short tons), and Älvsby-Piteå, 15 m. tons (16.53 short tons).

G. Capacity of Certain Main Line Strategic Railroads

Narvik - Luleå Line, 294 miles, single track.

Capacity substantially higher than the 23 trains per day each way which now run between Narvik and Kiruna when the ore trade is heavy. Any increase in capacity would be dependent upon making additional electric or steam locomotives available.

Boden - Haparanda, 103 miles, single track.

The estimated capacity in March, 1940, was 6 trains daily in each direction. This could be increased to 14 if additional rolling stock were made available. Chief limiting factors would be transshipment capacities at Haparanda and Tornio, number of steam locomotives available, and time required to put track and road bed in good state of repair.

Stockholm - Boden, 710 miles.

Double track to Uppsala and single track from Uppsala to Boden. Given unlimited motive power and rolling stock the capacity is as follows:

Stockholm-Uppsala: 80 trains per day in each direction.

Uppsala-Ånge: 36 trains per day in each direction.

Ånge-Vännäs: 36 trains per day in each direction.

Vännäs-Boden: 24 trains per day in each direction.

Stockholm-Malmö, 372 miles.

Single track except for a few short sections of double track. Given unlimited motive power and rolling stock, the capacity is estimated at 36 trains per day.

Malmö-Trälleborg, 19 miles single track.

20 trains per day in each direction.

Göteborg-Stockholm, 283 miles, chiefly double tracked.

Reported that 1941-42 budget makes provision for double-tracking additional sections of this line.

Given unlimited rolling stock and motive power, capacity estimated at 48 trains per day in each direction.

Gällivare-Vansbro, 707 miles, single track.

12 trains per day in each direction.

Göteborg-Vansbro, 255 miles, single track (?)

No details available on capacity.

Göteborg-Malmö, 186 miles, single track.

36 trains per day in each direction.

Stockholm-Charlottenberg (Oslo) - 268 miles single track except for short stretches of double track.

12 trains in each direction every 24 hours.

Sundsvall-Östersund-Storlien, 223 miles, single track.

12 trains per day in each direction on the Östersund-Storlien section.

H. DESCRIPTION OF BRIDGES AND TUNNELS ON CERTAIN STRATEGIACLLY IMPORTANT LINES OF THE STATE RAILROADS

(Note: Distances are given in miles, but bridge dimensions are left in the original with an English approximation following).

(1) Narvik-Luleå line, 294 miles of which 34 miles are in Norway.

Distance in miles from Narvik	Station	Engineering Works
24	Riksgränsen	Tunnel
28	Vassijaure	" 1,758.52 feet long Njulja Tunnel 2,746.05 feet long Large bridge over the Kalix Älv Valley
145	Hamojakk (Risbäck)	Bridge over the Kajtumälv
152	Linaälv	Bridge over the Linaälv

(2) Boden-Haparanda line, 103 miles. Bridges are all of iron girder construction, and have a permissible axle load of 18 tons (19.8 short tons)

Bridges on the Morjärv-Karungi-Haparanda Line

Name	Length (feet)	Span (feet)	Construction
Stryckan	62.9 (205 ft.)	1 of 61.8 (202 ft.)	Framework
Kalix Älv	157.5 (516 ft.)	1 of 46.4 (152 ft.)	"
		1 of 61.8 (202 ft.)	"
		1 of 46.4 (185 ft.)	"
Strakan	66.1 (217 ft.)	1 of 18.4 (61 ft.)	Flat beam
		1 of 26.5 (87 ft.)	Framework
		1 of 18.4 (61 ft.)	Flat Beam
Lillian	38.9 (127 ft.)	2 of 18.8 (62 ft.)	" "
Storsträskan	16.5 (53 ft.)	1 of 15.8 (51 ft.)	" "
Kukkusjoki	32 (108 ft.)	1 of 31.6 (103 ft.)	Framework
Hankijoki	16.5 (53 ft.)	1 of 15.8 (51 ft.)	Flat beam
Kerasjoki	32.5 (106 ft.)	1 of 31.6 (103 ft.)	Framework
Torn Älv	406.4 (1333 ft.)	2 of 41.7 (136 ft.)	Framework, pivot bridge
		2 of 61.8 (202 ft.)	" " "
		2 of 24.8 (113 ft.)	" " "
		2 of 61.8 (202 ft.)	" " "

Bridge over Torneå River at Haparanda. This iron girder bridge is 406.4 m. (1334 ft.) long and has 3 spans (seven of which are fixed and one of which is a swing span) - 2 of 41.7 m. (136 ft.) - 2 of 61.8 m. (202 ft.) - 2 of 34.8 m. (113 ft.) - and 2 of 61.8 m. (202 ft.).

(3) Stockholm-Boden line-711 miles.

From Stockholm - miles:

	Station	Engineering Works
4	Ulriksdal	Bridge over small river
12	Rotebro	2 bridges over small rivers
15	Upplands Väsby	Bridge over small river
23	Märsta	" " " "
25	Odensala	" " " "
30	Knivsta	Several bridges over small river
49	Brunna	Bridge over small river
53	Älansdal	" " " "
70	Heby	" " " "
74	Isätna	" " " "
80	Sala	" " " "
93	Rosshyttan	" " " "

(4) Krylbo-Ånge line - 201 miles.

Distance in miles from Krylbo	Station	Engineering Works
0	Krylbo	Iron girder bridge (7 spans) 225 m. (738 ft.) long over Dalälven.
2	Jularbo	Bridge over a small river.
6	--	Bridge over a small river.
11	Morshyttan	Bridge over a small river.
21	Dalgränsen	Bridge over a small stream.
25	Hästbo	Bridge
30	Torsäker	Bridge
35	Storvik	"
40	Ashammar	4 bridge over small rivers.
57	Hammarsjön	Bridge over a small river.
59	Ockelbo	2 bridge over a river

Distance in miles from Krylbo	Station	Engineering Works
70	Lingbo	2 bridges over 2 rivers
76	Holmsveden	Bridge over a river
81	Röstbo	2 bridges over two small rivers
86	Kilafors	Bridge
94	Lännings	Bridge over the Voxna river
97	Bollnäs	Bridge over the Galvan river
103	Lottefors	Bridge over a small river
106	Arbrå	Bridge over a small river
114	Simeå	Bridge over a small river
129	Skästra	Large bridge (3 spans) over the Ljusnan
153	Ramsjö	Bridge over a small river
177	Mellansjö	Bridge over the Juvatsan
194	Älby	Bridge over the Ljungan 1,417 ft. long

Distance in miles from Ånge	Station	Engineering Works
19	Bråcke	Large bridge
53	Kalarne	Bridge over a small river
61	Hasjö	2 bridges

(5) Ånge-Boden line - 410 miles.

Distance in miles from Ånge	Station	Engineering Works
0	Ånge	Tunnel, 66 ft. long
69	Ragunda	Tunnel, 417 ft. long. Bridge over Indalsälven (2 spans of 62 m. (203.41 ft.) and 2 spans of 41.5 m. (136 ft.); iron grider construction; height 28 m. (91.86 ft.)

Distance in Miles from Ånge	Station	Engineering Works
75	Österede	Bridge over a small river
77	Bispgården	2 bridges over 2 small rivers
88	Graninge	Bridge over the Ledingsån
101	Långsele	Bridge
109	Forsmo	Large iron girder bridge (246 m. (807.08ft.) lng and 49m. (160.76 ft.) high, over Ångermanälven.
113	Selsjön	Bridge (span of 10.7 m.) 35 feet) over the Björkan.
118	Backsjön	Bridge over a small river
127	Aspeå	2 bridges over 2 small rivers
139	Skorped	Bridge over a small river
157	Mellansel	Bridge over the Moälv
160	Goltne	Bridge over the Utteran.
167	Björnsjö	Bridge over a small river. Bridge span of 15.5 m.(51ft.) over the Björna Lilla
173	Björna	Bridge (span of 27.05 (89 ft.) and 34.85 (114 ft.) and 21.05 (112 ft.) 16 m. (52 ft.) high, over the Gideälv
180	Langviksmon	Bridge over a small river
188	Trehörningsjö	" " " " "
190	Norrfors	Bridge over the Lögde Älv. Bridge over a small river.
209		Large bridge of reinforced concrete over the Ore Älv. (Total length: 227 m. (745 ft.) 3 side spans of 16.2 m, (53 ft.) one principal span 90.7m., (297 ft.) and one side span 32.5 m., (106 ft.). Talbergstunnel, 133 m. (436 ft.) long.
222	Svartlund	Bridge over a small river. Bridge (span of 105 m., (344 ft.) over the Pongan.
232	Vännäs	Bridge (3 spans) over the Umeå. Bridge over the Tvaran
237	Tvärabäck	Bridge over a small stream
245	Tvärålund	Bridge (4 spans) 34 m., 112 ft. high, over Vindelälven

Distance in miles from Ånge	Station	Engineering Works
261	Hällnäs	Bridge over a small river
270	Yttersjön	" " " " "
288	Aströsk	" " " " " 3 bridges over small rivers.
301	Bastuträsk	Bridge over the Karsbäcken. Bridge (2 spans) 120 m., (394 ft.) long, over the Skellefte älv.
313	Kusfors	Bridge over the Petikan, tributary of the Skellefte älv. Bridge over a small river
329	Stortråsk	2 bridges over the Alsan. Bridge over the Byskeälv.
341	Myrdoden	3 bridges over a small river.
348	Langträsk	Bridge over the Åbyälv.
367	Storsund	Bridge
382	Älvsby	Bridge over the Piteå
408	---	Bridge (2 spans of 50 m., (164 ft.) and 1 of 62 m.(203 ft.), over the Luleå

(6) Älvsby-Piteå - 32 miles

Distance from Älvsby - miles	Station	Engineering Works
13	Vargbacken	Metal and concrete bridge (4 spans of 15, (49 ft.) 55 (180 ft.) 20 (66 ft.) and 24. m. (79 ft.). Total length of 129.7 m. (423 ft.)., over the Piteå.

(7) Bastuträsk-Skellefteå - 40 miles

Distance in miles from Bastuträsk	Station	Engineering Works
0	Bastuträsk	Bridge over small river
20	Klutmark	Lattice girder bridge (4 spans: 1 of 24 (79 ft.), 1 of 60 (197 ft.) and 2 of 24 m., (79 ft.) 133 m. (436 ft.) long over the Skellefte Älv.
24	Medle	Bridge over the Stoveran
27	Klintfors	Plate girder bridge (2 spans of 18.4 (59 ft.) and 13.2 m. (43 ft.) 32.6 m. (106 ft.) long over the Klintforsen.

(8) Vännäs-Holmsund line - 29 miles

Distance in miles from Vännäs	Station	Engineering Works
2	Vännäsby	Lattice girder bridge (3 spans) over Vindelsälven, which joins the Umeå at this point
10	Idobäcken	Bridge over a small river
11	Brännland	" " " " "

(9) Hollansel-Örnsköldsvik - 18 miles

Distance in miles from Hollansel	Station	Engineering Works
6	Mokyrka	Bridge over the Mödlv
16	Tvillingsta	Bridge

(10) Ljusdal-Hudiksvall Line - 38 miles

Distance from Ljusdal	Station	Engineering Works
28	Mäsviken	Bridge over a northern outlet of Langsjön

(11) Kilafors-Söderhamn Line, 21 miles

Distance from Kilafors	Station	Engineering Works
0	Kilafors	Bridge over the Sjusnan
11	Bergvik	Bridge over a small river connecting two lakes
13	Marmaverken	Bridge over a small river

(12) Stockholm-Gävle Line - 112 miles

Distance from Stockholm	Station	Engineering Works
53	Vattholma	Bridge
68	Örbyhus	" Bridge over a river
79	Tierp	"
96	Älvkarleö	Large bridge over the Dalälven

(13) Malmö-Stockholm - 372 miles

Distance in miles from Malmö	Station	Engineering Works
0	Malmö	Overbridge
52	Hässleholm	Several underbridges
167	Nässjö	Underbridge
213	Boxholm	Bridge over the Svartan river
253	Gistad	Swing bridge over the Göta canal

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Distance in miles from Malmö	Station	Engineering works
262	Okna	Bridge over the Motala Ström
308	Nyköbing	Nyköbing bridge (iron girder construction; 48.6 m. (159 ft.) long; 1 span of 41.4 m. (136 ft.) and 1 of 5.6 m. (17ft.)
312	Sjösa	Iron girder bridge (span of 3X 9.8 m. (10 x 31 ft.) resting on 2 stone pillars.
329	Västerljung	Bridge (span of 7.6 m. (34 ft.)
332	Vagnhärad	Iron girder bridge (span of 3X 10.7 m. (10 X 35 ft.) resting on 2 stone pillars.
336	Norrvra	Trosaan bridge (1 span of 18.4 m. (60 ft.), 19 m. (62 ft.) long
350	Södertälje S.	Bridge over the Södertälje canal
364	Huddings	Large concrete bridge over 2250 ft. long
367	Älvsjö	2 tunnels. Bridge 720 ft. long on 14 stone pillars, over the southern outflow of Lake Mälaren. Arsta bridge, 810 ft. long, over the northern outflow of the Mälaren

(15) Stockholm-Göteborg - 283 miles

Distance in miles from Göteborg	Station	Engineering Works
12	Lerum	Bridge over the River Säveån
50	Herrljung	Bridge over a river
76	Valtorp	Bridge over a river
104	Tidan	" " " "
114	Töreboda	Bridge over the Göta Canal
142	Laxå	Bridge over a river

(16) Gällivare-Storuman - 1162.

Name of bridge	Length m. (ft.)	Span	Construction
Gällivare-Jokkmokkline			
Siakijoki	23 (75 ft.) 187.6 (614 ft.)	1 of 22 m. (72 ft.) 1 of 41.4 m. (135 ft.) 1 of 42 m. (138 ft.) 1 of 60 m. (197 ft.) 1 of 42 m. (138 ft.)	Iron girder. 4 steel spans supported on stone piers. The rails are laid 130 ft. above the river.

Name of bridge	Length m. (ft)	Span	Construction
Pakkojokk		1 of 20 m, (66 ft.)	Stone.
Lilla Lule älv	63.1 (207 ft.)	1 of 62 m. (203 ft.)	Steel girder.

Jokkmokk-Sorsele

3 bridges, bridge over the Piteälv, bridge at Moskosel, bridge over the Åby Älv, bridge over the Byske Älv near Arvidsjaur, bridge over the Skellefte Älv, bridge over the tributary of the Vindelälv.

Sorsele-Storuman line

Vindelälven	33 (108 ft.)	1 of 32 m. (105 ft.)	Iron girder
Vindelälven	73 (240 ft.)	1 of 72 (236 ft.)	Iron girder
Juktan	63.1 (207 ft.)	1 of 62 (203 ft.)	Iron girder
Lomavan	21.9 (70 ft.)	1 of 21 (69 ft.)	Iron girder
Gunnarbäcken	18.6 (61 ft.)	1 of 18 (59 ft.)	Iron girder
Lillan vid Storuman	21.8 (71 ft.)	1 of 20.9 (67 ft)	Iron girder

(17) Storuman-Östersund line - 194 miles.

Distance in miles from Storuman	Station	Engineering Works
0	Storuman	Bridge (2 granite arches with a span of 16.7 m. (54 ft.) each; 1 principal arch of 61.8 m. (202 ft.) span and 1 stone arch of 15.8 m. (51 ft.) span); 119 m. (390 ft.) long.
26	Vojman	Bridge (2 stone arches of 10 m. (33 ft.) span each; 1 plate girder span of 41.4 m. (135 ft.), 68 m. (223 ft.) long.
42	Vilhelmina	Plate girder bridge (2 spans of 20.9 m. (67 ft.) and 1 of 41.4 m. (135 ft.) 86.1 m. (282 ft.) long over the Vogman.
48	Volgsjöfors	Bridge (2 spans of 18.8 m. (61 ft.) each; 1 of 46.6 m. (153 ft.), and 4 of 15.8 m. (51 ft.), 152 m. (499 ft.) long over the Ångermanälven.
56	Moselofors	Bridge over the Mosjöbäcken. (1 plate girder span of 21.8 m. (70 ft.)
64	Granberget	Bridge metal and concrete constuction over the Fjällan.

Distance in miles from Storuman	Station	Engineering Works
71	Saxvattnet	Bridge (span of 29 m. (95 ft.) 30.6 m. (99 ft.) long over Bergvattenan.
83	Rörström	Plate girder bridge (2 spans of 36.2 m. (118 ft.) each and 1 span of 46.6 m. (152 ft.), 122.3 m. (400 ft.) long over the Rörströmsjön. Plate girder bridge (span of 20.9 m. (67 ft.), 21.8 m. (70 ft.) long over the Rörströmsjön.
90	Hoting	Bridge (2 spans of 13.2 m. (43 ft.) and 1 of 34 m. (112 ft.), 61 m. (200 ft.) long over Tasjöälven. Bridge (span of 35 m. (115 ft.) metal and concrete construction, over the Flasjön.
110	Lovberga	2 bridges over 2 small rivers.
116	Österkälen	Bridge over the Malman river. Bridge over a small river.
122	Ulriksfors	Bridge over the Strömson river.
128	Hullnäset	Bridge.
137	Gissolas	Bridge. Plate girder bridge (span of 36.2 m. (118 ft.) over the Ojan. (Length of bridge; 37.3 m.) (121 ft.) Plate girder bridge (span of 41.4 m. (135 ft.), 42.5 m. (139 ft.) long, over the Storan.
170	Häggenäs	Plate girder bridge (3 spans of 41.4 m. (136 ft.) each); 127.5 m. (418 ft.) long over the Harkan.
178	Klösta	Plate girder bridge (2 spans of 41.4 m. (135 ft.), 85 m. (279 ft.) long over the Langa river.
181	Litsnäset	Bridge over the Lits river. Bridge over a small river.
188	Kännason	Bridge over a small stream.

(18) Östersund-Vansbro line - 244 miles.

Distance in miles from Östersund	Station	Engineering Works
42	Svenstavik	Bridge over a small river.

Distance in miles from Östersund	Station	Engineering Works
44	Rörösjön	Bridge over a small river.
51	Asama	Bridge over a small river.
63	Rojan	Metal and concrete bridge (span of 15 m. (49 ft.) over the Röjaälv. Bridge over a small river.
76	Sörtjärn	Plate girder bridge (2 spans of 23.5 m. each (77 ft.); 49 m. (161 ft.) long over the Hoan river.
96	Jamsvallen	2 bridges over small rivers.
100	Andasvallen	Plate girder bridge (span of 21 m. (69 ft.); 22 m. (72 ft.) long over the Norrälven.
109	Ytterbergslyn	Metal and concrete bridge (span of 15 m. (49 ft.) over the Salnan river.
114	Snog	Bridge (3 spans of 25 m. (82 ft.) and 1 span of 45 m. (148 ft.) over the Ljusnan. Bridge over a small river.
129	Kropptjärn	Bridge.
148	Lillhamra	Bridge over the Sandsjöan.
159	Älvho	Bridge (span of 22.5 m. (74 ft over the Oreälv.
173	Emadalen	Bridge (4 spans of 9.6 m. (31 ft.) and 1 span of 39.7 m. (129 ft.) over the Emån river
189	Hansjö	Bridge (2 spans of 25 m. (82 ft.) over the Oreälv.
199	Mora	Iron girder bridge resting on concrete pillars over Dalälven, (this bridge has 3 spans: 44.5 m., (146 ft.) 42. m. (139 ft.) and 45 m. (148 ft.)

(19) Arvidsjaur-Jörn line - 47 miles.

Distance in miles from Arvidsjaur	Station	Engineering Works
0	Arvidsjaur	Bridge over a tributary of the Byske Älv.
10	Ralund	Bridge over a small river.
19	Halbergsliden	Bridge over a small river.

	27	Glommerträsk	Bridge over a small river leading to a lake.
	31	Missentträsk	"
(20)	Storuman-Hällnäs line - 104 miles.		
	3	Stensele	Bridge over a tributary of the Umeå.
	30	Askiljo	Lattice girder bridge (4 span of 46.6 m. each(152 ft.), 190.4 m. long, (624 ft.), over the Umeå. Plate girder bridge (1 span of 16 m. (52 ft.) 16.7 m. long (54 ft.) over Paubackan.
	43	Kattisavan	Plate girder bridge (1 span of 21 m.(69 ft.), 21.9 m. long (71 ft.), over the Rusbäckan.
	63	Lycksele	Bridge over western arm of the Umeå. (Plate and lattice girder construction; 3 spans of 18.4 (60 ft.), 36.2 (118 ft.), and 18.4 m. (27 ft.); total length: 76 m. (249 ft.) Plate girder bridge (2 spans of 18.3 (60 ft.) and 4.6 m. (14 ft.), total length of 23. m. (77 ft.) over a canal. Lattice girder bridge (2 span of 72 (236 ft.) and 41.4 m. (135 ft.) total length: 115. m. (378 ft.) over the eastern arm of the Umeå.
	75	Arvan	Plate girder bridge (span of 23.5 m. (77 ft.), 24.3 m. (79 ft.) long.
	83	Bjursolofors	Plate girder bridge (span of 18.4 m. (60 ft.), 19.1 m. (63 ft.) long over the Maltan. Lattice girder bridge (2 spans of 36.2 (118 ft.), and 51.6 m. (168 ft.), 89.9 m. (294 ft.) long over Vindelälven.
	86	Amsele	2 bridges over a small river.
	97	Cladaborg	Bridge. Plate girder bridge (span of 18.4 m. (60 ft.) 19.1 m. (63 ft.) long over the Hjuksan.

(22) Hoting-Forsmo line -- 75 miles.

Distance in miles from Hoting	Station	Engineering Works
10	Flybäckan	Metal and granite bridge (span of 9.5 m. (31 ft.) over a canal. Lattice girder bridge (2 spans of 16 m. (52 ft.) and 1 span of 46.6 m. (152 ft.) over Rörströmsälven)
35	Langvattnet	Plate girder bridge (span of 16 m. (52 ft.), 16.8 m. (54 ft.) long over the Röan.
42	Roan	Plate girder bridge (2 spans of 15 m. (49 ft.) and 5 spans of 18 m. (59 ft.); total length 120.7 m. (395 ft.); height above river level 25 m (82 ft.)over the Röan.
53	Akvissland	Lattice girder bridge (3 spans of 38.55 (126 ft.) and 38 m. (125 ft.) over Fjällsjöälven; 132.1 m. (433 ft.) long.
62	Tannflo	Bridge over a small river.

(22) Göteborg-Vansbro line - 255 miles.

Distance in miles from Göteborg	Station	Engineering Works
45	Trollhättan	Large bridge over the Göta Älv.
60	Fröndefors	Bridge over a small river.
66	Brolanda	Bridge over a small river.
76	Mollerud	Large bridge over the Lelångan where it flows into Lake Vänern.
101	Ånäl	Bridge.
112	Säffle	Bridge over a river leading to the Glansfjord.
129	Slottsbron	Bridge.
137	Edsvalla	Bridge.
154	Dejo	Large bridge over Klarälven.
219	Rämmen	Bridge over a river.
250	Trotjärn	Bridge over Västerdalälven.

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(23) Göteborg-Malmö line - 186 miles.

Distance in miles from Göteborg	Station	Engineering Works
17	Kungsbacka	Bridge over a river.
37	Värobacka	Bridge (span of 20.88 m. (67 ft.) over the Viskan Lilla.
67	Falkenberg	Bridge (2 spans of 30.36 m. (99 ft.) over the river Atran.
93	Halmstad Norra	Bridge (2 spans of 33.5 m. (109 ft.) over the Nissan river.
109	Laholm	Bridge over the river Lagan.
112	Vallberga	Bridge over a tributary of the Lagan.
119	Bastad	Bridge over a small river.
135	Ängelholm	Bridge over a river.
172	Furulund	Bridge over a river.

(24) Stockholm-Charlottenberg (Oslo) line - 268 miles.

Distance in miles from Stockholm	Station	Engineering Works
149	Hassolfors	Bridge over a river.
163	Dagerfors	Bridge (span of more than 50 m. (164 ft.) over the Letälv.
200	Alster	Bridge.
204	Karlstad Central	Swing bridge over the western arm of Klarälven.
216	Kil	High iron bridge (span of more than 50 m. (164 ft.) over the river Norsälven, an affluent of the Fryken lakes.
233	Brunsberg	Tunnel 300 yards long.
242	Myron	Short tunnel.
247	Arvika	Bridge over a river.

(25) Sundsvall-Östersund-Storlien - 223 miles.

32	Viskan	Bridge over a small river.
35	Torpshammer	Bridge over the Gimån 60 m. (197 ft.) long, 18 m. (59 ft. high.
38	Gotterån	Bridge over the Gotterån.

47	----	Stone bridge (span of 52 m. (171 ft.) over the Ljungan.
85	Stavre	Bridge over Gällösundet.
93	Gällö	Bridge over Gällösundet
129	Täng	Bridge (6 spans) over Indals-älven.
152	Trångsviken	Bridge.
171		Bridge over the Järpströmmen
193	Duved	Bridge (3 spans, 71 m. (233 ft.) long.
208	Ann	Two bridges over small river.
215	Enafors	Bridge.

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I. Ferry Services Operated by Swedish State Railroads

a. Length of Ferry Lines (in miles)

	Trälleborg-Sassnitz	Malmö-København	Hälsingborg-Helsingør
Operating length	66.48	18.64	3.1
Half reckoned as Swedish	33.24	9.32	1.56
Tariff length	62.13	3.1	6.21

b. Capacity of Ferry Boats

	Trälleborg-Sassnitz			Malmö-København
	Konung Gustaf	Drottning Victoria	Starke	Malmö
Gross capacity Swedish ferry boats, reg. ton	3279	3297	2459	1588
Net Capacity, reg. ton	1423	1443	554	630
Available track length, (ft.)	525	522	640	463
Maximum Number passengers	780	780	-	1350

PROVISIONAL EDITION

FREE

RAILROADS OF SWEDEN

Double track electrified
Single track electrified
Single track not electrified
Narrow gauge track
Car ferry

SCALE
0 50 100
MILES

Note: Ferry Malmö to Copenhagen suspended July 12, 1942.

12 16 20 24

68 64 60 56

NORWAY

GULF OF BOTHNIA

FINLAND

SEA

BALTIC

Narvik
Kiruna
Gällivare
Haparanda
Boden
Luleå
Arvidsjaur
Jörn
Storuman
Skellefteå
Hällnäs
Vännäs
Umeå
Mellansel
Örnsköldsvik
Ed
Östersund
Bräcke
Hede
Åre
Storlien
Sveg
Lindvallen
Hudiksvall
Bollnäs
Ånge
Sundsvall
Härnösand
Kramfors
Örebro
Uppsala
Rimbo
STOCKHOLM
Nyköping
Norrköping
Linköping
Motala
Västervik
Visby
GOTLAND
Oskarshamn
Kalmar
ÖLAND
Oxelösund
Hallsberg
Laxå
Karlstad
Kil
Arvika
Strömstad
OSLO
Uddevalla
Trollhättan
Vänersborg
Skövde
Falköping
Jönköping
Nässjö
Alvesta
Växjö
Hässleholm
Kristianstad
Åhus
Ystad
Simrishamn
Olofström
Karlskrona
Ronneby
Karlshamn
Hallsberg
Örebro
Kristinehamn
Arboga
Västerås
Eskilstuna
Katrineholm
Flen
Nyköping
Södertälje
Uppsala
Gävle
Sandviken
Falun
Borlänge
Mora
Insjön
Orsa
Rättvik
Leksand
Ludvika
Hallstahammar
Kolbäck
Tranås
Hjo
Töreboda
Mariestad
Lidköping
Skara
Falköping
Herrljunga
Borås
Alingsås
Lerum
GÖTEBORG
Kungälv
Strömstad
Uddevalla
Trollhättan
Vänersborg
Lidköping
Skara
Mariestad
Töreboda
Hjo
Tranås
Varberg
Falkenberg
Halmstad
Ängelholm
Helsingborg
Landskrona
Kristianstad
Åhus
Ystad
Simrishamn
Olofström
Karlskrona
Ronneby
Karlshamn
Alvesta
Växjö
Hässleholm

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APPENDIX XVIII

Highways and Busses

A. STATE OWNED BUS LINES, 1939

Length of routes in operation at end of year.	3,842
Vehicles in use at end of year:	
Busses and cars	409
Trucks	32
Trailers, passenger	2
Trailers, freight	61
Bus miles	8,825,806
Truck Miles	536,124

B. BUS LINES OWNED BY PRIVATE RAILROADS, 1939.

	Operated directly by the railroad	Operated through affiliated Companies
Length of line in operation	6080 miles	3749 miles
Busses and passenger cars	582	431
Trucks	197	90
Trailers, freight	40	71
Trailers, passenger	2	--
Bus and passenger car miles (1938 figures)	14,230,616	10,435,048

(5d4)

C. HIGHWAYS BY TYPES OF CONSTRUCTION - 1940
(All figures in miles)

COUNTY (Län)	PAVING STONE, CONCRETE AND TOPEKA	PERMANENT ASPALT	SEMI-PERMANENT MACADAM AND TREATED GRAVEL	GRAVEL & MACADAM VARIOUS TYPES OF DUST BINDER.	ORDINARY GRAVEL & MACADAM	TOTAL
Stockholm	36	49	376	427	1087	1975
Uppsala	21	5	44	335	877	1282
Södermanland	55	10	19	697	783	1564
Östergötland	45	6	60	534	1979	2624
Jönköping	24		20	710	2062	2816
Kronoberg	12	12	7	469	1737	2237
Kalmar	26		39	472	1814	2351
Gotland	9		10	1310	480	1809
Blekinge	60	6	20	350	464	900
Kristianstad	126	39	65	725	1165	2120
Malmöhus	180	34	264	360	1619	2457
Halland	86	9	41	222	1042	1400
Göteborg & Bohus	85	4	22	242	1163	1516
Älvsborg	26	18	25	1743	1328	3140

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(5454)

Highways By Types of Construction - 1940

COUNTRY	PAVING STONE, CONCRETE AND TOPEKA	PERMANENT ASPHALT	SEMI-PERMANENT MACADAM AND TREATED GRAVEL	GRAVEL & MACADAM VARIOUS TYPES OF DUST BINDER	ORDINARY GRAVEL & MACADAM	TOTAL
Skaraborg	4	10	25	633	1758	2430
Värmland	9	55	22	929	1622	2637
Örebro	34	1	34	539	945	1553
Västmanland	45	--	27	523	871	1466
Kopparberg	37	18	85	1553	1063	2756
Gävleborg	19	4	14	633	1247	1917
Västernorrland	14	14	44	849	2174	3095
Jämtland	3	1	4	583	2174	2765
Västerbotten	---		14	221	4515	4750
Norrbotten	---	7	17	1457	2687	4168

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D. LIST OF FIRMS ENGAGED IN HIGHWAY CONSTRUCTION.

Name of firm	Home Office
Armerad Betong	Malmö
Bergendahl & Höckert	Göteborg
Erik Brenner	Västerås
Torsten Brostrand	Skara
Bröderna Hansson	Emmaboda
Byggnads AB. Tector	Stockholm
Cerna AB.	Göteborg
Aug. Eriksson	Sickelsta
Edvin Frisk	Bidalite
John M. Grahn	Sandhem
Granit & Betong AB.	Stockholm
Gunnar Hall	Brittatorp
Hiwaco AB.	Stockholm
Hova Vägbyggnadsbolag	Hova
AB. Kasper Höglund	Stockholm
Ingenjör Carl L. Jonsson	Grythyttan
K. Johansson	Askersund
Karl Johansson	Kinna
Karl Johansson	Halmstad
K. W. Johansson	Kungsbacka
P. Lindholm	Dorotea
Aug. Ljungkvist	Oleby
Tor Loquist	Stockholm
AB Nils P. Lund	Malmö

Name of Firm	Home Office
Hilmer Magnusson	Håbol
Nya Asfalt AB.	Stockholm
Knut & Albert Olofsson	Hällinden
Samuel Olsson	Henån
C.A. Pettersson	Lysekil
N. O. Sandquist	Lysekil
Skånska Cementgjuteriet AB.	Stockholm
Oskar Stabäck	Skara
Svenska AB. Christiani & Nielsen	Stockholm
Svenska Väg AB.	Stockholm
C. A. Wallenberg and Son	Stockholm
Gösta Westberg	Trollhättan
Vägbyggnadsfirman Bröderna Persson & Co.	Knäred
AB. Vägförbättringar	Stockholm
Jakob Österplan	Öttum

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E. HIGHWAY BUDGET PROPOSALS FOR YEAR 1941-42.

Road Construction and Maintenance	Dollars
Maintenance in rural districts	11,448,000
Bridge Construction	600,000
For construction of Svinesund bridge (between Sweden & Norway)	72,000
Paving Roads	960,000
Roads and Streets in cities	1,800,000
New construction of roads.	960,000
New construction in distant regions	360,000
Construction and maintenance of certain military roads and bridges	909,600
Construction of private roads	120,000
Maintenance of private roads	72,000
Improvement of roads in rural districts	3,120,000
Royal Board of Highways and Waterfalls	198,672
State Road Institute	48,000
Road organization in the counties	220,320
TOTAL	20,900,592

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E. HIGHWAY BUDGET PROPOSALS FOR YEAR 1941-42.

Road Construction and Maintenance	Dollars
Maintenance in rural districts	11,448,000
Bridge Construction	600,000
For construction of Svinesund bridge (between Sweden & Norway)	72,000
Paving Roads	960,000
Roads and Streets in cities	1,800,000
New construction of roads.	960,000
New construction in distant regions	360,000
Construction and maintenance of certain military roads and bridges	909,600
Construction of private roads	120,000
Maintenance of private roads	72,000
Improvement of roads in rural districts	3,120,000
Royal Board of Highways and Waterfalls	198,672
State Road Institute	48,000
Road organization in the counties	220,320
TOTAL	20,900,592

PROVISIONAL EDITION

FREE

HIGHWAYS OF SWEDEN

Principal roads (in part surfaced with asphalt or bitumen)

Other good roads (largely rock-surfaced)

0 50 100 Miles

0 50 100 150 Kilometers

12 16 20 24

68 64 60 56

Narvik
Karesuando
Kiruna
Arvidsjaur
Gällivare
Porjus
HORNAVAN
Umeå
Arjeplog
Boden
Luleå
Piteå
Storuman
Skellefteå
Lycksele
Vilhelmina
Strömsund
Hälla
Vänäs
Umeå
Sandviken
Järpen
Åre
Östersund
Örnsköldsvik
Sollefteå
Fjällnäs
Härnösand
Sundsvall
Hudiksvall
Söderhamn
Gävle
Falun
Ludvika
Avesta
Uppsala
Stockholm
Eskilstuna
Västerås
Örebro
Karlskoga
Nyköping
Norrköping
Motala
Jönköping
Vimmerby
Västervik
Oskarshamn
Vetlanda
Växjö
Kalmar
Värnamo
Ljungby
Hybro
Karlskrona
Karlshamn
Kristianstad
Hässleholm
Markaryd
Ängelholm
Helsingborg
Halmstad
Falkenberg
Varberg
Borås
Trollhättan
Lidköping
Skara
Mariestad
Karlstad
Arvika
Charlottenberg
Strömstad
Åmål
Kristinehamn
Hallsberg
Nora
Fagersta
Hofors
Gävle
Sundsvall
Hudiksvall
Söderhamn
Ljusdal
Bollnäs
Sveg
Östersund
Åre
Storlien
Trondheim
Mo
Mosjöen
Mo i Rana
Fauske
Bodø
Svolvær
Harstad
Tromsø
Hammerfest
Alta
Kautokeino
Karesuando
Kiruna
Gällivare
Arvidsjaur
Arjeplog
Jokkmokk
Luleå
Piteå
Skellefteå
Umeå
Örnsköldsvik
Härnösand
Sundsvall
Gävle

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APPENDIX XIX

Automobiles and Gasoline Facilities

A. MOTOR VEHICLES, DECEMBER 31, 1940

	Total Registered	Total Available
Passenger automobiles	34,646	146,000 - includes busses
Busses	3,604	
Trucks and special automobiles	43,084	27,098 - trucks alone
Motorcycles	29,520	83,277

B. TRUCK REGISTRATION, BY LARGEST SELLERS - 1939

Chevrolet	18,091
Volvo	16,655
Ford	12,512
Scania-Vabis	1,381

(SCS)

C. PRODUCTION OF MOTOR VEHICLES, 1941

	Passenger Cars	Trucks	Busses[X]	Motor-cycles	3 wheel vehicles	Truck Capacity
Aktb. Volvo, Göteborg	126	2,679	240	---	---	1543 to 1764 lbs.
AB. Scania - Vabis, Södertälje	---	233	19	---	---	4.9 to 10.4 tons.
Allmänna Svenska Elektriska AB., Västerås	---	81XX	54XXX	---	---	----------
AB. Maskinfabriken Rex, Halmstad	---	----	----	---	About 100	441 lbs.
AB. Nymans Verkstäder, Uppsala	---	----	----	---	About 1000	386 lbs.
Total	126	2,993	313		About 1,100	

X Bus capacity varies from 40 to 60 seats
XX Electric trucks with a loading capacity of 1.5 tons made by a subsidiary company, Svenska Elektrobil AB., Stockholm in cooperation with AB. Volvo, Göteborg.
XXX Trolley Busses.

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D. GAS PUMPS IN OPERATION, 1939

Brand sold	Gasoline Pumps	Gas - Oil Pumps
Jersey Products	5,719	21
Shell	3,772	--
A. 1	775	--
Texas	1,398	--

Main Competitive Oil Companies.

Svenska- Engelska Mineralolje AB (Shell)

Vacuum Oil Company A/B

Svenska Bensin and Petroleum A/B

Svenska Gulf Oil Company A/B

The Texas Company A/B

Associated Oil Companies

Svenska Petroleum A/B (Standard)

A/B Lyse (marketing of kerosene)

Nya Rederia - Hoggam (transportation of oil supplies)

Skandinavisk Amerikanska Petroleum A/B (Sales of Lubricating Oils).

Facilities of Associated Companies

Terminals - 159

Depots - 396

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APPENDIX XX

SWEDISH INLAND WATERWAYS

A. TRAFFIC ON THE INLAND WATERWAYS, 1939

	Number of Voyages	Net Tonnage
Dalsland Canals	4,889	168,361
Passageway to Luleå	2,552	4,321,760
Göta Canal	5,273	381,582
Hjälmare Canal	2,063	136,903
Kinda Canal	811	56,322
Stockholm Sluice	21,869	1,974,565
Strömsholms Canal	1,189	35,670
Säffle Canal	1,920	157,591
Södertälje Canal	12,169	1,405,349
Falsterbo Canal	Opened in 1941	

B. MAXIMUM DIMENSION FOR ADMISSION OF VESSELS TO SWEDISH CANALS
(in feet)

Waterway	Length	Beam	Draft
Trollhätte Canal	285.3	41.0	13.1
Dalsland Canals	68.8	13.1	4.9
Säffle Canal	104.9	23.3	9.8
Göta Canal	104.9	22.9	9.2
Kinda Canal	80.8	15.0	4.8
Södertälje Canal	393.0	59.0	18.0
Hammarbyleden Canal	360.8	49.2	18.5
Karl Johan Lock	229.6	29.5	10.5
Hjälmare Canal	110.5	23.6	6.3
Strömsholm Canal	65.6	17.3	5.3
Falsterbo Canal	No limit	65.6	20.0

There are only 3 interior waterways in Sweden large enough to admit vessels of any considerable size - Trollhätte Canal connecting the North Sea with Lake Vänern, the largest lake in Sweden, and the Södertälje and Hammarbyleden Canals, both of which connect Lake Mälaren with the Baltic Sea. A number of channels have been dredged in Lake Mälaren admitting vessels with a draft of 18 ft.

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C. LIST OF SWEDISH INLAND PORTS

CANALS AND LAKES ARRANGED GENERALLY FROM WEST TO EAST

1. Trollhätte Canal (from Göteborg to Lake Vänern):

The canal is 53.8 miles long, divided as follows: Göta River 46.66 miles, 5 canals 6.21 miles, and a small lake .93 miles. Six locks. Owned by the Swedish Government and administered by the Trollhätte Kanalverk under the supervision of the Royal Board of Waterfalls (Kungl. Vattenfallsstyrelsen).

Name of Port	Depth in Feet	
	At Wharf	At Anchorage
Agnesberg	13	
Surte	13	
Bohus	--	
Kungälv	8	
Nol	13	
Älvängen	11	
Lödöse	10	
Garn	11	
Göta	--	
Lilla Edet	--	
Trollhättan	10-14	
Stallbacka	14	

2. Lake Vänern: (largest lake in Swedon, with a surface of 2,124 square miles)

Name of Port	Depth in Feet	
	At Wharf	At Anchorage
Vänersborg	10-13	
Dalbergså	10	
Sunnanå	7-23	
Köpmannebro	10	
Köpmannehamn (under construction for vessels drawing 16.4 feet)		
Vingern	--	19.35
Åmål	10-17	13-72
Kirkebyn	10-11	23-39
Gruvön	10-36	66-82
Slottsbron	9-10	20-75
Anghammar	--	--
Borgviksbruk	--	--
Skoghall	8-16	25
Karlstad	11-16	20-49
Borgholmen	13-15	16-30
Skattkärr	--	11
Kristinehamn	10-17	16-30
Hult	10	--
Otterbäcken	10-18	10-30
Sjötorp	11	--
Mariestad	10-11	12
Arnäs	10	--
Nönsäter	7-10	--
Hällekis	7-10	--
Råbäck	10	11
Blomberg	6	--
Lidköping	10-15	20-23
Lådkö	8.52	--

3. Dalsland Canals (from western shore of Lake Vänern to Lake Lelångon, Stora Le and others):

Comprises three canals owned by 3 private companies. Total length 183 miles. Used chiefly for timber floating and local steamer traffic. Contains 31 locks.

There are 14 ports on the Dalsland canals, named as follows: Snäcke, Upperud, Håverud, Långed, Billingsfors, Bengtsfors, Gustafsfors, Arjäng, Krakfors, Sil, Lennartsfors, Töcksfors, Strand, and Le.

4. Säffle Canal (from western shore of Lake Vänern to Lake Glavsfjorden):

Length of canal and river section - 21 miles; Lake Glavsfjorden - 28 miles long. Privately owned. There is one lock at Sil - 104.98 feet long, 23.35 feet wide, and 9.84 feet deep. Vessels measuring up to 160 net reg. tons are admitted.

Name of Port	Depth in Feet	
	At Wharf	At Anchorage
Säffle	8.85	14.76-16.40
Hällsbäck	--	--
Hillringsberg	--	--
Arvika	9.84	13.12-19.68

5. Göta Canal

Göta canal is the joint name of the various canals, lakes and rivers forming a waterway connecting Lake Vänern with the Baltic Sea. Following are three principal sections:

Lake Vänern-Lake Vättern.....41.07 miles
Passage across Lake Vättern.....19.94 "
Lake Vättern- Baltic Sea.....57.34 "

(1) The stretch Vänern-Vättern consists of 23 miles of constructed canals and 18.07 miles of rivers and lakes. The section Vättern-Baltic is composed of 31 miles of canals and 27 miles of lakes. In the Vänern-Vättern section there are 21 locks and in the Vättern-Baltic section 37 locks. The canal is administered by the Göta Kanalverk. At Töreboda, the largest port on this stretch, the depth at the wharf is 9.51 feet.

(2) Lake Vättern is the second largest lake in Sweden with a surface of 734 square miles; it is about 81 miles long and 20 miles wide.

Name of Port	Depth in Feet	
	At Wharf	At Anchorage
Karlsborg	9.18-9.84	16.4
Olshammar	10.82	10.82
Aspabruk	16.4	16.4-82.02
Askersund	10.49	13.12-16.4
Ammeberg	6.56-9.84	10.82
Hjo	8.52-9.51	--
Jönköping	10.82	13.12-49.21
Huskvarna	9.84-22.96	--
Gränna	9.84	--
Hästholmen	9.84	--
Vadstena	4.59 -8.85	--
Motala	9.84	9.84-49.21

(3) Lake Vättern-Baltic Sea section:

Name of Port	Depth in Feet	
	At Wharf	At Anchorage
Borensberg	--	--
Linköping	4.92-10.17	--
Norrsholm	9.84-11.42	--
Söderköping	9.51	--

6. Kinda Canal (from Linköping, city on Göta canal, southward connecting about 6 small lakes):

Total length about 58 miles, of which 17 miles consist of constructed canals. The main portion belongs to the Kinda Kanals Aktiebolag, a private company. There are 15 locks, and 8 ports of only local importance: Tannefors, Hjulsbro, Rimforsa, Hovly, Stjärnvik, Björkfors, Hyckline, and Horn.

7. Baltic Sea-Lake Mälaren connection:

a) Södertälje Canal (from Södertälje city on the Baltic Sea to Lake Mälaren): The canal has only one lock, 1.73 miles long in the excavated portion; it is owned by the Swedish Government. The water at Södertälje is 11-21 feet deep at the wharf and 52.49 feet at anchorage.

b) Hammarbyleden (from Stockholm-Baltic Sea ports around southern section of Stockholm city to Lake Mälaren). Opened 1930. About 4 miles long; depth at low water, 20.17 feet. One lock, 377.29 feet long and 57.08 feet wide.

c) Karl Johans Sluice (lock at the city of Stockholm, between Stockholm-Baltic Sea ports and Stockholm-Lake Mälaren ports): 246.06 feet long, 32.8 wide, and 11.15 feet deep. There

are two fixed bridges over the lock with a free height of 17.71 feet above the mean water level of Lake Mälaren.

8. Lake Mälaren (third Swedish lake in order of size) with a surface of 440 square miles; about 71 miles long, and varying in width from .37 to 31 miles.

Name of Port	Depth in Feet At Wharf	At Anchorage
Stockholm-Mälare Ports	6.56-24.6	22.3
Mariefred	9.84-11.8	19.68
Strängnäs	9.84-13.77	26.24
Torshälla	7.87	5.90-9.84
Eskilstuna	8.85	--

(Note: To reach Eskilstuna it is necessary to pass through two locks at Torshälla measuring 114.82 by 24.92 by 7.87 feet.)

Mälarbaden	12.13	--
Kungsör	8.85-9.84	11.48-22.96
Köping	11.48-20.33	11.48-19.68
Västerås	10.49-19.68	22.96-32.8
Enköping	5.57-9.84	--
Östorby	--	--
Kungs-Husby	--	--
Hagslätta	8.2	--
Sigtuna	7.87-9.84	--
Örsundsbro	--	--
Uppsala	2.95-7.87	--
Sundbyberg	6.88-11.15	--

9. Arboga River and Hjälmare Canal (from Lake Mälaren to Lake Hjälmaren): About one-half of this waterway from Lake Mälaren consists of the navigable Arboga River. The Canal itself covers a distance of 8.5 miles from Arboga River to Lake Hjälmaren. The Canal is privately owned. There are 9 locks, measuring 110.55 by 23.61 by 6.82 feet.

Maximum draft for admission of vessels:

Arboga River: controlling depth 7.87 feet.

Hjälmare Canal: vessels drawing 6.39 feet.

Water depth at Arboga - 7.54 feet.

No figures for Hällby.

10. Lake Hjälmaren: (fourth Swedish lake in order of size) with a surface of 185.2 square miles, a length of 37.9 miles and with a maximum width of 12.42 miles.

Name of Port	Depth in Feet At Wharf	At Anchorage
Nothelmen	8.2-9.84	13.12
Stora Sundby	6.56	--
Fiskeboda	6.88	--

Name of Port	Depth in Feet At Wharf	At Anchorage
Lappe	9.84	--
Sogersjo"	8.2	--
Hjalmarbaden	4.92	--
Örebro	6.56-8.85	--
Grythem	6.56	--
Nanberga	9.8 4	--

11. Strömsholms Canal (from Lake Mälaren northward):

Length of waterway about 66 miles, of which one-fifth is formed by constructed canals and the rest by river channels and lakes. There are 26 locks. Privately owned. The 8 ports on this canal are of local importance only: Strömsholm, Hallstahammar, Surahammar, Ramnäs, Angelsberg, Västanfors, Fagersta, Smedjebacken.

APPENDIX XXI

SWEDISH PORTS WITH A VOLUME OF ARRIVALS AND CLEARANCES TOTALLING 200,000 NET REGISTER TONS OR MORE IN 1939. COLUMN FOR 1940 INDICATES EFFECT OF THE WAR.

PORTS	1939-1,000 Net Tons-1940	
Göteborg	15,658	6,295
Stockholm	11,574	6,289
Malmö	8,842	2,896
Trälleborg	5,701	4,502
Hälsingborg	8,116	3,005
Luleå	4,287	5,833
Oxelösund	3,149	1,977
Gävle	2,816	1,444
Norrköping	2,091	834
Sundsvall	1,316	532
Härnösand	777	490
Skellefteå	712	416
Örnsköldsvik	885	363
Umeå	900	348
Söderhamn	917	294
Piteå	501	216
Hudiksvall	311	166
Kalmar	1,585	830
Landskrona	1,269	739
Ystad	768	549
Oskarshamn	808	535
Limhamn	1,244	533

CONFIDENTIAL

PORTS	1939-1,000 Net Tons-1940	
Visby	843	482
Halmstad	880	454
Karlshamn	973	400
Kristianstad (Åhus)	522	280
Marstrand	672	259
Västervik	477	210
Svartvik	555	234
Östrand	679	202
Hargshamn	259	198
Vivstavarv-Fagervik	562	174
Skutskär-Harnäs	435	156
Domsjö	488	151
Husum	405	141
Norrsundet	402	128
Munksund o. Skuthamn	329	126
Iggesund	481	122
Kramfors norra	708	116
Dynäs-Väja	408	111
Vallvik	547	108
Svanö	325	102
Sandarne	378	91
Köpmanholmen	428	83
Stockvikon	204	79
Obbola	225	68

(584)

CONFIDENTIAL

PORTS	1939- Net Tons-1940	
Bollsta	227	47
Sikeå	218	47
Sprängsviken	233	44
Hörnefors	227	41
Söråker	210	39
Frånö	216	38
Hallstavik	328	31
Ortviken	263	22
Utansjö	333	13
Hönö-Kläva	514	462
Nynäshamn	529	357
Södertälje	479	341
Uddevalla	391	307
Lysekil	423	252
Karlskrona	382	192
Borgholm	280	189
Slite	335	182
Varberg	362	180
Färjestaden	267	177
Sölvesborg	302	173
Ronneby	388	114
Gravarne o. Bäckevik	204	110
Västerås	857	603
Köping	552	396
Otterbäcken	401	276
Karlstad	464	250
Kristinehamn	325	156

(584)

APPENDIX XXII

LIST OF SWEDISH SEAPORTS

A. West Coast of Sweden (north to south from Norwegian frontier to Falsterboudde).

Name of Port	Depth in feet At Wharf	At Anchorage
Hälle	10-16	23-30
Pilegården	16	23-30
Borråsgården	10	23-30
Krokstrand	15-16	23-30
Björneröd	---	23-30
Svinesund	---	23-30
Saltbacken	---	23-85
Dyne	6-13	26-39
Strömstad	10-25	30-66
Kosterhamnen	---	49-82
*Ramsö	11	---
*Havstenssund	15	33-56
Sannäs	11-15	---
*Källarholmen	11	36-46
Grebbestad	---	23-30
Kampersnik	15-20	39-46
Fjällbacka	9-15	26-33
Hedestrand	15-18	23
Gerlesborg	11-15	23
Bovallstrand	15-18	---
Ulebergshamn	16	49
*Hunnebastrand	11-15	30-59
*Alstenshamn	---	30-39
*Väjern	15	13
*Hasselösund	10-11.48	33-52

Name of Port	Depth in feet At Wharf	At Anchorage
*Gravarne	14-18	59-69
Fisketången	11.80	--
*Smögen	15-23	59-69
Hogenäs Näs	11-15	--
Örn	12.46-18	--
Tullboda	13	--
Rörvik	15	--
Amhult	13	--
Risdal	13.77	--
Timmervik	20	--
Stensjö	11	--
Röd	11	--
Åby	8-11	--
Ed	15.08	--
Fågelviken	24	--
Svee	14	--
Rågårdsdal	13	--
Röe	13	--
Vrångebäck	11-13	--
Grönvik	18	46-59
Mahurons Stenhuggeri	13	46-49
Kolva Sandvik	13	--
Åker	13	--
Norra Halmsund	10	--
Sjöbod	16	--
Norrkila	13	--
Lehälla	20	--
Govik	13	--
Rixi Stenhuggeri	19-21	--
Vinbräcka	13-20	--
Hjälmedal	16	--

Name of Port	Depth in Feet At Wharf	At Anchorage
Sandvik	13	--
Säven	15	59-82
*Skalhamn	7-8	--
Ramsvik	18	59-69
*Stora Komö	8	--
Valbodalen	15	39-52
Lysekil	7-30	59-79
Munedalshamn	10-18	39-43
Saltkällan	10	39-52
*Fiskebäckskil	8	52
*Grundsund	13-16	23-89
Källviken	--	56
Uddevalla	7-23	21.32-131
Ellös	7-13	26-52
*Gullholmen	--	33-39
*Hälleviksstrand	11	13
*Käringön	7-10	46-52
*Mollösund	10-16	22-92
Nösund	7-13	23-36
Skopesund	10	--
Stenungssund	10	21
Kyrkesund	16	8-33
*Skärhamn	--	30-39
*Nordviksstrand	--	--
*Kladesholmen	10-12	52-95
*Rönnäng	12	--
*Norra Astol	12	--
*Stora Dyrö	12	--
Marstrand	5-11	33-52
*Rörö	12	--
*Hyppeln	11	--

Name of Port	Depth in Feet At Wharf	At Anchorage
*Knipplan	10-13	--
*Björko	12	--
*Öckerö	12	--
*Hönö Röd (under construction)		
*Hönöklava	11-13	30-33
*Fogdö	12	--
Längedrag	9-10	--
*Fiskebäcksudde	12	--
*Vrångö	12	--
Kungsbacka	3	26-66
*Bua (Båtfjorden)	10	--
Varberg	16-24	20-23
*Träslöv	11	--
*Galtabäck	10	--
*Glommen	7-11	--
Falkenberg	5-16	11
Halmstad	10-23	26
Båstad	7-8	30-36
*Torekov	8-12	20-26
**Ramsjöhamn	8	--
*Vejbystrand	7-8	--
Ängelholm (Skälderviken)	--	16-30
**Svanshall	6-8	--
**Slåirot	6	--
**Arildsläge	5-8	--
*Mölle	10	--
*Lerhamn	7	9-30
*Nyhamn	5	--
Höganäs	3-20	--
Viken	7-10	66

Name of Port	Depth in feet At Wharf	At Anchorage
Hälsingborg	13-33	43-98
Kopparverket	11-20	46-59
Näf	7-16	46-59
**Ålabodarna	5-7	33-39
**Norreborg	9	--
**Kyrbacken	5	10
**Bäckviken	5-13	--
**Borstahusen	6-10	10-16
Landskrona	11-25	36
*Barsebäckshamn	7-11	33
**Vikhög	6-8	18-31
Lomma	8	23-33
Malmö	12-30	39-46
Limhamn	11-25	30
Klagsham	15-18	20-23
**Skanör	8-10	13-16

*Fishing port.
**Government - subsidized fishing port.

B. South Coast of Sweden (west to east from Falsterboudde to Torhamnsudde)

Name of Port	Depth in Feet At Wharf	Depth in Feet At Anchorage
Trälleborg	21-23	26-43
*Gislöv	16-10	---
*Östra Torp	10	20-26
**Abbekas	8	--
Ystad	20-21	23-33
**Käseberga	10	--
**Skillinge	7	39-46
**Brantevik	--	--
Simrishamn	10-16	46-82
*Baskemölla	8-9	---
*Kivik	8-10	46-59
Åhus	14-20	20-43
Sölvesborg	7-20	20-25
**Torsö	7	--
*Hällevik	7-9	--
*Hanö	7-11	--
*Hörvik	5-10	16
*Krokås	7	--
*Ornavik	10	10-16
Pukavik	5-7	23-33
Ellehola	5	16
Gunnö	15-20	23-33
Stilleryd	4-7	11
Karlshäll	9-17	21
Karlshamn	14-30	23-39
Vettekulla	7-9	10
Tärnö Hamn	16	30-33
Matvik	12	26-49

Name of Port	Depth in Feet At Wharf	At Anchorage
Eriksberg	--	15-30
Skiftesö	--	15-30
Dragsö	--	9
Guö	8-9	17
Bjärnö	10	14-20
Edstorp	8	14-20
Järnarvik	8-10	20-46
Ronneby	11-21	16-23
Kuggeboda	5	13-26
Karlskrona	13-23.61	16-69
Stenshamn	8	--
Torhamn	7	11-14

C. 1. Island of Öland, West Coast (south to north)

Name of Port	Depth in Feet At Wharf	At Anchorage
*Grönhögen	7-11	--
Degerhamn	14-15	30
Mörbylånga	8-14	23-30
Färjestaden	9-14	--
Stora Rör	12	--
Borgholm	7-16	16-36
Sandvik	9-11	--
*Dyxelkrok	9	16

C. 2. Island of Öland, East Coast (south to north)

Kårehólm	--	59-62
Grankullaviken	15	26-30

D. 1. Island of Gotland, West Coast (south to north)

Name of Port	Depth in Feet At Wharf	At Anchorage
Burgsvik	12-14	14-23
Klintehamn	11-13	14-20
Västergarn	7	14-18
*Gnisvärd	6.23	--
Visby	11-20	131
Kappelshamn	12	23
Storugns	17	18
Bläse	15	20-26
Ar	11-15	--

D. 2. Island of Gotland, East Coast (south to north)

Ronehamn	11-15	13-26
Ljugarn	11-26	16-33
*Herrevik	--	16-39
Katthammarsvik	11-12	20-26
Slite	17-23	20-30
St. Olofsholm	18	--
Smöjen	13-20	26
Kyllej	7	--
Valleviken (Ruto)	12-16	15-36
Fjaugen	18	--
Bungenäs	11-23	18-23
Färösund	10-24	23-46
Strå (Lilla Stux)	15-16	--

*Fishing port.

E. East Coast of Sweden (south to north from Torhamnsudde to Finnish frontier)

Name of Port	Depth in Feet At Wharf	At Anchorage
Sandhamn	--	26-33
Kristianopel	7	16
Bergkvara	8-12	--
Ekenäs	6.56-8	--
Kalmar	10-22	16-39
Pataholm	10	30-39
Tillingenabben	10-14	18
Timmernabben	10	13-18
Mönsterås	12	20-33
Käppevik	8	10
Påskallavik	12-16	30-43
Oskarshamn	10-26	46-66
Saltvik	10	10-26
Virbodraget	--	16-20
Figeholm	10	26-39
Uthammar	10-26	--
Kärravik	10	11-20
Klintemåla	8-9	33-49
Flivik	12-14	13-16
Salstadström	9-10	49-82
Blankaholm	12-18	--
Slungsö	5-7	13
Skatet	11-16	66-115
Gunnebo	13	82
Verkebäck	14-25	131
Västervik	7-26	33-82
Almvik	10-15	26-33
Gamleby	10-19	23-49
Holgenäs	8-21	33-39

E. East Coast of Sweden (south to north from Torhamnsudde to Finnish frontier)

Name of Port	Depth in Feet At Wharf	At Anchorage
Skeppsgården	16	16-33
Valdemarsvik	11-14	26-30
Gryt	9-36	20-23
Fredriksnäs	13	26-46
Frulöt (Gropviken)	10	33-43
Arkösund	16	46-98
Djurön	8-25	18-25
Norrköping	16-21	23-33
Getå	8-13	16
Sandviken	8-20	—
Marmorbruket	16	—
Nävekvarn	13	39-49
Mersviken	8-11	18-26
Oxelösund	8-29	66
Oxelösund Järnverk	25	26-46
Hällsviken	8	11.48-30
Trosa.	8	—
Oaxen.	8-30	59-66
Södertälje	20-23	26-39
Nynäshamn	24	33-98
Dalarö	16	39-89
Saltsjöbaden	5-16	36-115
Gustavsberg	11-20	33-85
Sandshamn	10-18	49-121
Vaxholm	7-16	23-89
Högmarsö	7-15	46
Furusund	5-11	14

Name of Port	Depth in Feet At Wharf	At Anchorage
Grisselehamn	8	10-30
Herräng	8-18	23
Hallstavik	11-20	21-39
Hallstahamn	14	20-23
Hargshamn	11-20	21-39
Östhammar	9	10
Husbacka	10	10
Öregrund	20	23-32
Nörhamn	16	—
Kallerö	11-16	16
Ängskär	11	11
Fagervik	11	14-21
Karlholm	11	13-23
Near Mouth of Dalälven River		
Skutskär-Harnäs	17-18	49-56
Karskär	19-20	20-39
Kastet	- -	13-25
Gyle	8-27	23-69
Following the Coast-line.		
Norrsundet	5-13	13-59
Axmarby	8	16
Axmars Bruk	9	15-28
Near Mouth of Ljusnan River		
Vallvik	10-16	33
Ljusne	11	16-33
Ala	—	16-33
Nyhamn	12	25
Källskär	7-10	16-26
Sandarne	8-14	23
Långrör	12	20
Söderhamn (Stugsund)	7-18.69	18

Name of Port	Depth in Feet At Wharf	At Anchorage
Following the Coast-line		
Långplågan	- -	30
Långvind	7	16
Enånger	9	14-33
Snäckmora	- -	30-46
Iggesund	10-20	13-39
Saltvik	13	17.38
Hudiksvall	7.87-20	26-89
Lingarö	8-16	21
Stockviken	14	16-20
Jältendal	9	10-16
Gnarp	8	11
Galtström	9-16	30
Juniskär	10	11-98
Near Mouths of Ljungan and Indalsälven Rivers		
Norra Nyhamn	10-23	- -
Klampenborg	9-17	12-33
Södra Nyhamn	12-25	33-39
Essvik	16-21	—
Svartvik	13-23	46
Stockvik	- -	—
Kubikenborg	9-15	—
Mon	—	—
Hoffners	9-15	—
Ortviken	23	28
Tunadal	16-23	16-33
Johannedal	23-33.45	28-33
Sund	13	18-30
Skönvik	11-13	—
Östrand	—	—
Vivstavarv	10-18	21-46

Name of Port	Depth in Feet At Wharf	At Anchorage
Bölestrand	—	—
Fagervik	18	18-31
Alafors	—	—
Söråker	10-15	15-18
Nya Söråker	—	10-24
Sörvik	—	—
Strandvik	14	18-28
Utvik	18	18-28
Ankarsvik	13-18	15-26
Myrnäs	—	—
Karlsvik	—	—
Gustavsberg	16	20-27.55
Strand	11-22	22-39
Alvik	—	—
Vi	—	—
Gustavshamn	—	—
Nyvik	—	—
Johannesvik	—	—
Hovid	10-18	20-36
Eriksdal	—	—
Nacka	7-13	16-20
Hörningsholm	—	—
Stornäset	—	—
Following the Coast-line		
Oxvikskären	—	16-33
Bondhamnskären	—	7-23
Muggfördsviken	—	16
Sandstensfjörden	—	23-33
Barsviken	—	33-82
Byviken	—	33-39

Name of River	Depth in Feet At Wharf	Depth in Feet At Anchorage
Near Mouth of Ångermanälven River		
Svartvik	7	33-66
Lövudden	5-11	33-39
Härnösand	9-26	49-148
Lovvik	5-11	18
Älansbro	—	20
Nässlandssund	—	28
Ulvvik	10-26	—
Rö	8-18	18
Utansjö	23	59
Ramvik	8-36	49
Gustavsvik	21	39-98
Torsvik	7-31	66
Ramö	—	—
Sprängsviken	8-26	33
Lunde	8-15	—
Strömnäs	11-18	59-66
Svanö	12-25	33-36
Frunö	11-28	30-39
Björknäs	—	—
Kramfors	10	89
Grysholmen	5-11	—
Sandviken	23-30	49-82
Dynäs	23-28	66-98
Väja	25	66-98
Bollsta	18-33	18
Rossö	9-12	13-23
Nyland	8-18	—
Marieberg	13	16-18
Köja	3-23	23-43
Hallsta	25	31

Name of River	Depth in Feet At Wharf	At Anchorage
Lugnvik	15-18	49-82
Sandö	11-20	66
Dal	11	59
Östra Hornöviken	--	52
Norastrom	6-8	98-131
Gulloviken	--	98-131
Bölesta	--	49-66
Norra Lövviken	--	28
Bergkvistviken	--	18-28
Södra Lövviken	4-5	56
Following the Coast-line		
Berghamn	2	17-22
Säljeviken	--	22-27
Ramsta	8	22
Edsviken	--	59
Geviken	4-5	49
Medsnviken	--	23-66
Häggviken	5-8	28-79
Sörloviken	6	36-39
Onse	11	33-36
Möviken	10	46-59
Salsåker	10	49-59
Ullånger	10	30-49
Docksta	11	49
Ulvöhamn	10-18	59-82
Näske	5-11	36
Köpmansholmen	28	98
Örnsköldsvik	1.31-24	43-85
Domsjö	20	20
Järved	15	--
Alno	1.64-13	18

Name of River	Depth in Feet At Wharf	At Anchorage
Bodum	7	4-18
Skedo	13	33
Husum	16	59
Rundvik	12-13	15.41-17
Nothölmen	14	13-39
Järnäshamn	--	13-24
Kylörn	8-14	16-33
Norrbyskären (MO)	12-13	13-28
Hörnefors	15-18	15-25
Near Mouth of Ume River		
Simpkamn	11	12
Brodvik	15	26-33
Obbolo	15-21	33-43
Halmsund	12-23	36-56
Urveå	11	--
Sandvik	8-18	20
Djupvik	11-15	20
Following the Coast-line		
Brednoret	8	13
Raten	12	33
Dalkarlså	--	23
Lådeviken	8-10	28
Sikså	4-16	10-24
Cumboda	11	7-20
Kråkånger	16-20	16-26
Kallviken	11	10-16
Mickfors	--	23-25
Durvik	--	14-39
Bureå	10-23	46-56
Near Mouth of Skellefte River		
Orviken	3-16	33
Skelleftehamn	11-20	26-39

Name of Port	Depth in Feet At Wharf	Depth in Feet At Anchorage
Rönnskär	20-43	—
Sävenäs	13-14	18-20
Ursviken	13	—
Following the Coast-line		
Storkäge	10-16	39-46
Frostkäge (Kattisholmen)	10	52-79
Furmögrund	5-13	26-30
Bötvik	5-6	13
Brännfors	9-16	18-43
Near Mouth of Pite River		
Piteå	13-19	15-20
Skuthamn	10-18	23-30
Munksund	19-24	21-26
Tingsholmen	17	30
Storfors	13-15	26-30
Bergsviken	13-15	26-30
Lövholmen	8-11	15
Near Mouth of Lule River		
Luleå	7-27	23-66
Karlsvik	19-27	26
Karlshäll	7-23	20
Following the Coast-line		
Strömsund	10	15
Jämtösund	—	14
Törefors	3-13	20-30
Near Mouth of Kalix River		
Kalix	8-12	18
Karlsborg	8-18	18
Axelsvik	10	16-30
Following the Coast-line		
Bötskärsnäs	9-12	20

Name of Port	Depth in Feet At Wharf	Depth in Feet At Anchorage
Ängören	5-14	14-21
Gråvik	9-16	26
Sandvik	17	26
Haparandahamn	11-20	15-22
Haparanda	3	—

APPENDIX XXIII

Ports

List of Ports with Details on Port Capacities and Facilities, 1940
(no tidal waters)

Åhus

Depth of entrance channel . . . . . 20½ ft.
Quayage
New Quay . . . . . 3,493 "
Depth . . . . . 19 "
Old Quay . . . . . 1,150 "
Depth . . . . . 12-14 "

New Harbor dredged to a depth of 19 ft. 6 in. Good anchorage in roads. Depth, 23-30 ft. Turning place for vessels up to 440 ft. long has been dredged to a depth of 19 ft. by the New Quay. Vessels up to 420 ft. long, drawing 19 ft., can easily swing round in the harbour.

Cranage
1 hand crane . . . . . 10 tons
4 electric portable - 3 for 5 tons, and 1 for 11½ tons on the New Quay.
Depth by all cranes. . 20 ft.

Blankaholm

Depth
Entrance . . . . . 22 ft.
Harbour . . . . . 23-30 ft.
Good and safe anchorage.
Quayage . . . . . 510 ft.
Depth . . . . . 21 ft.
No cranes.

Borgholm

Water area . . . . . 5.15 acres
Depth varies from 14-16 ft. Only 11 ft. at breakwater. Vessels drawing more than 15 ft. cannot enter harbor at low water.
Good anchorage.
Piers
Length . . . . . 560 ft.
Depth. . . . . 14 ft.
Stone Quay. . . . . 300 ft. long
Depth. . . . . 16 ft.
Cranage . .
One . . . . . 3 ton capacity
Railway track

Burgsvik

Depth
Outer roadstead . . . . . 23-24 ft.
Inner roadstead . . . . . 16-17 ft.
Public Pier . . . . . 13-14 ft.
Entrance to inner roadstead and pier . . . . . 13-14 ft.

Carlskrona - see Karlskrona

Djupvik

Good anchorage.
Steamers can load up to 20 ft., in Holmsund Roads to about 26 ft.
Quayage (private)
Length . . . . . 1100 ft.
Depth . . . . . 10-12 ft.

Faröesund, Island of Gotland

Good anchorage.
Depth
Outer roads . . . . . 27½-29 ft.
South entrance. . . . . 18-20 ft.
North entrance. . . . . 17-18 ft.
Safe Harbour with 24-28 ft. of water.
Public pier - depth of 21 ft. alongside.

Gävle

Good anchorage in outer roadstead in 40-55 ft. where vessels can load and discharge by lighters.
Vessels drawing 26 ft. at medium water can enter the harbour through the North Entrance.
Depth of Entrance Channel. . . . . 27 ft. at medium water.
Quays (all belong to the town)
Low Quay (North Side)
Length . . . . . 3,000 ft. can be reached by vessels drawing 16 ft.
Cranage. . . . . 4 electric cranes of 5 tons.
Steamboat and Custom House quay
Length . . . . . 1,000 ft. can be reached by vessels drawing 16 ft.
Cranage. . . . . one of 15 tons.
Warehouse Quay
Length . . . . . 1,000 ft. can be reached by vessels drawing 11 to 15 ft.
Coal Quay
Length . . . . . 600 ft. can be reached by vessels drawing 16 ft.
Lower Quay
Length . . . . . 1,300 ft. can be reached by vessels drawing 16 ft.

Nyhamn (New Harbour)
Depth at entrance . . . . . 17 ft.
Quayage . . . . . 2,800 ft.
Cranage. . . . . 2 electric of 1½ tons each
Fredriksskans (New Harbour)
Quayage. . . . . 2,800 ft.
Depth . . . . . 27 ft. for a length of 910 ft., 23 ft. for the remaindor.
Cranage
9 electric for coal.
4 electric, 8½ tons each, for loading iron ore.
1 steam sheer to lift 40 tons at the patent slip.

Götoborg

Always accessible, practically ice free.
Dimensions
Width of entrance . . . . . 500 ft.
Depth at entrance . . . . . 32.8 ft.
Area of harbor . . . . . 1,055 acres
Warehouses - cover an area of 915,000 sq. ft.
Quays
Fish harbor - left bank of Göta River
Length . . . . . 3,820 ft.
Depth . . . . . 9.8 to 16.4 ft.
Stigbergs Quay
Length . . . . . 1,660 ft.
Depth. . . . . 23-32.8 ft.
Cranage. . . 19 travelling electric - 1½,2½, 3 and 5 tons, 2 railway tracks.
Masthugg's Quay
Length . . . . . 3,420 ft.
Depth. . . . . 16.7 to 19.7 ft.
Cranage. . . . 34 travelling electric - 2½ to 5 tons.
2-3 railway tracks.
Skeppsbro Quay
Length . . . . . 3,110 ft.
Depth. . . . . 16.7 ft.
Cranage - 3 travelling electric - 1½ to 5 tons.
1 railway track
Warehouse Quay
Length . . . . . 2,340 ft.
Depth. . . . . 16.7 ft.
Cranage - 12 travelling electric - 2½ to 5 tons
2 railway tracks
Little Bommon's Harbour (mainly used for canal steamers)
Length . . . . . 1,270 ft.
Depth. . . . . 11.8 ft.
Gullberg's Quay
Length . . . . . 5,200 ft.
Depth. . . . . 7 to 19 ft.
Cranage - 6 travelling electric with grabs of 5 tons.
7 travelling electric - ½ to 5 tons
2-3 railway tracks

Lärjehamnen (Oil Harbor)

Length.....2,100 ft.

Depth.....11.5 to 17.8 ft.

North Side of Göta River

Ryahamnen (Oil Harbor)

Length.....1,750 ft.

Depth.....13 to 20½ ft.

Sannegårds Harbor

West Quay - for coal traffic

Length.....1,750 ft.

Depth.....23 ft.

Cranage - 4 travelling electric with grabs for coal - 4-5 tons
15 travelling electric with grabs - 5-6 tons.

3 railway tracks.

East Quay

Length.....1,200 ft.

Depth.....23 to 26.2 ft.

Cranage - 9 travelling electric, with grabs - 5-6 tons.

5 railway tracks.

Lindholm's Harbor

West Basin

Length.....720 ft.

Depth.....16.4 ft.

Cranage.....6 travelling electric - 5 tons.

3 railway tracks

Frös Harbor

Length of quayage.....3,940 ft.

Depth.....29½ ft.

Cranage....31 travelling electric - 2½ to 5 tons

2 railway tracks.

Mooring-buoys on both sides of main channel providing

accomodation for 32 vessels - water depth up to 32.8 ft.

Stationary Cranes

1 at Masthugg's Quay.....20 tons

1 at Lindholmen Works.....40 tons

Floating Cranes

5 cranes - lifting capacity of 80, 27, 20, 12 and 10 tons respectively. (Private)

Lighters: also river, sea-going and salvage tugs.

All quays have railway tracks - total length 160 miles.

Bunkers - Excellent opportunities for both coal and oil bunkering.

Bunkering Stations

Svensk-Engelska Mineralolje A/B

One wharf-depth of 25 ft.

Oils available-fuel, Diesel, and gas.

Delivered by pipe line or from lighters.

Svenska Petroleum Aktiebolaget Standard

Tanks at Rya Harbor, north bank.

Length of berth-500 ft.

Depth-27 ft.

Oils available-fuel, Diesel, and gas.

Delivered from terminal or by lighter.

Vestkustens Petroleum A/B.

Berthing space-144 ft.

Depth of water-27 ft.

Storage- gas and Diesel oils, gasoline and kerosene.

Normal supply-110,000 bbls. Delivered from one 1,800 bbl. barge at rate of 700 bbls. per hour.

Texas Company A/B.

Berthing space-400 ft.

Depth-26 ft.

Storage-6 tanks with a total capacity of 50,000 bbls. of Diesel oil, gasoline and kerosene.

Normal supply-14,000 bbls. Diesel oil delivered from shore plant by pipe line at rate of 160 bbls. per hour.

Rya Harbor - on north bank at the mouth of the river. Used for discharge of benzin, petroleum and bunker oils from ocean vessels and also for bunkering purposes. Harbor consists of two piers: the east one used for discharging benzin from larger vessels and the west one for discharging fuel oils, for bunkering, and for loading lighters. Large depot tanks and extensive storing grounds ashore.

Lärje Harbor - used for re-loading of benzin and fuel oils from lighters to canal vessels, railway cars and tank motor trucks for local distribution.

Gustavsberg

Good anchorage.

Depth in port - 39 to 49 ft., but only 17 ft. at entrance.

Private Quay - can be reached by vessels drawing 17 ft.

Halmstad

Depth at entrance to outer Harbour....21 ft. 3 in.

Inner Harbour

Area.....51 acres

Depth at entrance.....21 ft. 3 in.

Quayage.....11,756 ft.

Depth.....21½ ft.

Cranage - one 2½ ton electric crane; two 5-ton electric level lifting portal cranes; four 5-ton electric portal cranes; two 6-ton electric bridge cranes; one 10-ton hand crane.

Warehouse.....43,055 sq. ft.

Hargshamn

Good anchorage with a depth from 22 ft. to 46 ft.

Quay with a depth ranging from 12-18 ft.

One elevator for loading ore - depth alongside of 28 ft.

Härnäs

Several piers with depths ranging from 10 to 19 ft.

Vessels can load in harbor to a depth of 18 ft.

Hälsingborg

Width of entrance.....262 ft. on north and 295 ft. on south.

Depth of entrance.....30 ft.

Vessels drawing 29 ft. can enter under ordinary circumstances.

New Harbor

water area.....2½ acres

available depth at entrance.....29 ft.

Quayage.....1,650 ft.

Depth.....for 900 ft. - 32 ft. 9 in.; for 750 ft. - 26 ft. 3 in.

On the west side of the New Harbor are two special berths for tank ships with 26 ft. and 30 ft. of water alongside.

North Harbor

Depth at entrance.....23 ft. 4 in.

Quayage.....4,700 ft.

Depth at south quayside.....21 ft.

Central Harbor

water area.....489,000 sq. ft.

depth of water at entrance.....23 ft.

Quayage.....3,180 ft.

depth at west quayside.....23 ft.

depth at east quayside.....19 ft.

Crannage

15 portable.....5 tons each

3 portables.....4 to 6 ton bridge cranes

1 private electric on side of dry dock - 40 tons

Warehousing.....13,659 sq. ft.

Råå Harbor

Depth

At roadstead.....32 to 65 ft.

At entrance.....17 ft. 6 in.

Quayage.....1,200 ft.

Depth.....6 ft. 6 in. to 16 ft.

Hopparverket Harbor

Depth

At roadstead.....45 to 65 ft.

At entrance.....21 ft.

Quayage.....738 ft.

Depth.....19 ft. 6 in. to 11 ft.

Cranage.....3 moveable electric - 3,4, and 5 tons.

1 electric - 1½ tons

Härnösand

Good anchorage-depth from 40 to 150 ft.

Inner harbor.....15-25 ft.

Quayage - Two public.....6246 ft.

Depth.....12-26 ft.

Cranage - 1 electric - 15 tons; one for bulk cargoes- capacity of 80 tons of coal per hour

Railway track along quay.

Private piers

Ballsta - 15-17 ft. depth alongside. Good anchorage, with a depth of 45 ft.

Kramfors - 14 to 23 ft. alongside. Anchorage depth - 45-85 ft.

Nyland - 230 ft. long quay with water depth of 10-16½ ft. alongside.

Thirty other private piers, all safe and with sufficient water depth for the largest vessels.

Höganäs

Harbor entrance.....2,000 ft. long, 130 ft. wide, and 21 ft. deep.

Anchorage - bad, with a water depth of 18 to 28 ft.

Quayage

Pier serves as quay.....1,300 ft. long

Depth.....17½ ft. at outer end

13½ ft. at inner end

Cross quay.....250 ft.

Depth..... 11 ft.

1 quay of 600 ft. length - used for discharge of iron ore and other bulk cargoes.

Malmsbron Quay - in middle of harbor. Used for discharge of iron.

Depth - 20½ ft. on the north-west side for 350 ft. from the outer end; 11½ ft. for the next 200 ft., and unnavigable for the remainder.

Cranage - 3 portable electric - 2 of 4 and 1 of 3 tons.

1 electric of 1 ton.

Holmsund

Good anchorage.

Steamers can load up to 20 ft., in Holmsund Roads to about 26 ft.

Quayage - 1 private 1,650 ft. long.

Depth.....20 ft.

Umeå

Quayage.....1,115 ft.

Depth..... 20-23 ft.

Storage - coal storage and warehouses.

Connected with State Railways.

Hudiksvall

Quayage - Public - 1,281 ft.

Depth.....19 ft. for 480 ft.

Private piers - several with 12 to 15 ft. depth alongside. Vessels up to 30 ft. draught can load. Good anchorage, with a depth from 30 to 85 ft.

Iggesund

Depths

Inner Harbor.....16 ft.

Entrance channel to Inner Harbor.....16 ft.

Middle Harbor.....24 ft.

Entrance channel to Middle Harbor.....27 ft.

Outer Harbor.....30 to 45 ft.

Good anchorage

Quayage - 1 private - 15½ ft. depth alongside.

Kalmar

Inner Harbor

Water area.....about 79 acres.

Depth.....11-20 ft.

At Grunskär Light....40 ft.

At entrance from Roads to Harbor.....20 ft.

Quayage.....11,800 ft.

Depth.....11½ to 20 ft.

Good anchorage in the roads where the vessels can load and discharge in a depth from 23 to 40 ft.

Cranage - 2 electric of 5 tons each

3 electric of 1½, 3 and 4 tons

2 electric of 5 tons

Warehousing.....3,229 sq. ft.

Bunkering:

Svenska Petroleum Aktiebolaget Standard

Located at extreme mouth of Harbor on southeastern Bulkhead.

Berth length - unlimited.

Depth-20 ft.

Delivered at terminal or by tank truck to all harbor docks.

Only gas available.

(584)

Karlshamn

Harbor dimensions

Water area.....56½ acres

Length.....2,624 ft.

Width.....1,312 ft.

Depth.....21 to 33 ft.

Quayage

East side.....2,076 ft.

Depth.....10 to 19½ ft.

West side.....3,651 ft.

Depth.....17 to 33 ft.

Cranage - Hand crane of 10 tons on East Quay

- 2 electric travelling cranes - 5 and 10 tons

- 1 electric bridge crane (private) - 1½ tons

Warehousing..... 5,920 sq. ft.

Good anchorage. One benzine petroleum depot in the outer western part of Harbour basin where ships drawing 28½ ft. can go alongside.

Oil Bunkers -

Svenska Petroleum Aktiebolaget Standard

Installations in Outer Harbor.

Berth length - unlimited

Depth -27 ft.

Delivered at terminal or by tank truck to all harbor docks.

Only gas available.

Karlskrona

Three entrances to the port. The first, between the ports of Kungsholmen and Drottningskär, is available for vessels of largest size; the second at Arpo is for vessels drawing not more than 13 ft.; the third at Longören will take vessels drawing less than 9 ft.

Harbor depth.....24 to 72 ft.

Can accommodate 500 vessels at anchorage. Vessels drawing not more than 24 ft. 4 in. can unload at quays in inner Harbor. Anchorage very good. Outer harbor used chiefly for war vessels.

Cranage

2 electric of 5 tons each.

Warehousing.....2,625 sq. ft.

Karlstad

Inner Harbor

Depth of entrance Channel.....10 ft.

Quayage.....3,410 ft.

Depth.....10 ft.

Cranage..2 fixed cranes for 1 and 6½ tons

Outer Harbor

Depth of entrance channel.....16 ft.

Quayage.....4,590 ft.

Depth.....16 ft.

Cranage - 3 electric travelling bridge cranes for 1½, 3½ and 6½ tons

1 electric travelling crane - 5 tons.

1 fixed electric crane - 15 tons

Klintehamn

Depth at roadstead.....18 to 19 ft.

Depth alongside pier.....13 to 14 ft.

Landskrona

Depth of Entrance Channel and outer harbor.....30 ft.

Quayage.....5000 ft. total

of which large harbor.....3,000 ft.

Depth.....25 ft.

New harbor.....2,000 ft.

Depth.....19 ft.

Coaling station

Tugs

Cranage

Large Harbor

3 portable electric for 5 tons

1 portable electric for 20 tons

1 bridge crane for 5½ tons

1 grain elevator and 3 portable electric for 1½ tons

New Harbor

2 sugar elevators and 2 electric for 1 ton

1 for 80 tons (private)

Warehousing.....4,628 sq. ft.

Oil Bunkers -

Svenska Petroleum Aktiebolaget Standard

Tanks located at Industrigatan 2 on Northeast Quay.

Berth length - unlimited

Depth-26 ft.

Delivered at terminal, or by shipment of barrels available throughout harbor.

Only gas available.

Limhamn

Water area.....1,900,000 sq. ft.

Depth of entrance channel.....25 ft.

Quayage.....6,083 ft.

Depth.....23 ft.

Ljusne

Outer Harbor - can be entered by vessels drawing 24 ft.

Vessels drawing 22-23 ft. can load from lighters in the harbor.

Good anchorage in about 5 fathoms.

Quayage

One, private, North Ljusne, 800 ft.

Depth.....9 ft., being dredged to 15 ft.

One, private, South Ljusne, 400 ft.

Depth.....9 ft.

Luleå

Harbor consists of natural basin with the town on a peninsula in center of basin.

Good anchorage - 27 to 65 ft. south of the town, and 23 to 39 ft. north of the town.

Depth - 27 to 65 ft. south of the town, and 23 to 39 ft. north of the town

Generally ice-bound from end of November to middle of May.

Ice-breaker available.

Harbor

Water area - 4,872 acres of which 2,323 acres with a depth of 20 to 46 ft.

Depth

Entrance channel.....26½ ft.

In harbor.....20 to 46 ft.

Quayage

North Quays.....2,800 ft.

Depth.....15 to 20 ft.

South Quays.....1,450 ft.

Depth.....18 to 22 ft.

Quay length of pier.....885 ft.

Depth.....18 to 20 ft.

Railway runs on the South Quay and pier.

Cranage - 1 electric for 20 tons

Quays at Svartön

No. 1.....700 ft.

Depth.....26½ ft.

No. 2.....515 ft.

Depth.....26½ ft.

No. 3.....460 ft.

Depth.....26½ ft.

No. 4.....400 ft.

Depth.....26½ ft.

Stone Quay for discharge of coal....620 ft.

Depth.....23 to 25 ft.

Railway on quay

Cranage - 2 electric for 4 tons

Two elevated piers

1 - 875 ft. long; 51½ ft. above water

Depth.....26½ ft.

1 - 585 ft. long; 48½ ft. above water

Depth.....26½ ft.

12 chutes to discharge ore from railway wagons into ships' holds at the rate of 33,000 tons per day.

Malmö

Dimensions

Entrance Channel to Central Harbor - 262 ft. wide, 23 ft. deep.

Entrance to Free Harbor - 197 ft. wide, 30 ft. deep.

Entrance to Industrial Harbor - 7,380 ft. long, 197 ft. wide, 23 ft. deep.

Free Harbor

Number	Warehouses Floor surface, sq. ft.	General Statement
1	about 161,782	6 belt conveyors 6 freight elevators
1	5,629	----
1	10,882	1 electric travelling hoist
1	40,903	----
1	15,499	----

Cranes

Number	Type of Crane	Capacity, short tons
6	Electric gantry cranes	2.75
1	" " (private)	3.30
2	" " (private)	5.51

Other Mechanical Equipment

Number	Type	
1	steam engine	Lifting and pulling power unknown
1	motor engine	
1	Railway scale	
1	Platform scale	
6	Electric conveyors	

Berth

Concrete - 2,247 ft. long; 30 ft. deep at average state of water.

2 R.R. tracks.

Warehouses

Situation	Number	Floor Surface, square feet
Ångbåtsbron	--	13,821
New Harbor	No. I	11,313
"	No. II	15,812
"	No. III	12,615
"	No. IV	12,378
"	Baltiska Magazine	16,490
Magasinet at Hjälmaregatan	---	19,375
North Skeppsbro quay	Holland's warehouse	2,540
Large customs warehouse		22,604
Transitomagasinet		2,831
Warehouse		2,443
Cold Storage		19,375

Cranes

Situation	No.	Type of crane	Capacity, short tons
Dock quay	1	Hand power crane (stationary)	6.61
Stockholm's quay	1	Electric (stationary)	16.53
"	3	Electric gantry	3.30

Cranes

Situation	No.	Type of crane	Capacity, short tons
Stockholm's quay	4	Electric gantry	2.20
Jorgen Kock's quay	2	Electric gantry	3.30
"	1	Electric gantry(grabbucket)	5.51
"	1	Electric double crane (stationary and private)	1.10
Hullgatan quay	1	Electric bridge (private)	6.83
"	1		6.83
"	1		6
"	2	Electric gantry-lever	5.78
Hjälmare quay		Electric gantry-lever	3.30-5.51
"	1	Electric bridge crane	4.41
"	1	Electric bridge crane	6.61
Skeppsbro quay	1	Electric gantry	1.65
"	1	Hand power (stationary)	4.41
Kockumsutrustning quay	1	Electric gantry (private)	88.-33.08
Beijersgatan quay	2	Electric bridge	6.61
Suell's quay	1	Hand power (stationary)	3.31
"	1	Hand power (stationary)	2.20
Industry harbor	1	Electric gantry	5.51
"	1	Electric bridge (private)	7.16

Other Mechanical Equipment

Situation	No.	Type
Central	-3	3 steam engines, 1 electric tractor,
Jorgen Kock's quay	-1	1 railway scale, 1 cable-way
Skeppsbro quay	-1	1 railway scale
Valskvarn's quay	-1	1 pneumatic grain elevator
Neptunigatan	-1	1 railway scale and 1 platform scale
Bager's quay	3	3 brick conveyors and hauling winches
Vintergatan	1	1 railway scale and 1 platform scale

Berths

Situation	Type	Length(ft)	Depth at quay at average state of water (ft.)	Number of railroad tracks
Petroleum quay	Concrete	574	23.78	2
Dock quay	"	591	23.78	—
Ångbåt bridge	Wood	820	19.68	2
"	"	558	14.76	1
Stockholm quay	Concrete	1,493	23.78	2
Jorgen Kock quay	"	804	23.78	2
Hullgatan quay	"	2.182	23.78	2
Hjälmare quay	"	1,280	21.32	2
Skeppsbro quay	"	755	18.04	2
"	"	574	19.68	2
Kockums Verkstads	Iron tongues	623	22.96	—
Valskvarn's quay	Concrete	755	23.78	2
Beijersgatan quay	"	623	23.78	2
"	"	525	23.78	2
Suell's quay	Stone	443	13.12	—
Bager's quay	"	427	13.12	—
West harbor canal quay	Wood	1,148	13.12	—
Citadell quay	"	1,247	13.12	—
Varv's canal quay	"	1,083	13.12	1
Industry quay	Concrete	1,526	23.78	2

Oil Bunkers.

Svenska-Engelska Minneralolje AB

One wharf - berthing space for vessels up to 500 ft.

Depth - 18 ft.

Diesel and gas oils - delivered by pipe line from shore plant or by lighter

Svenska Petroleum Aktiebolaget Standard

Located at head of Petroleum quay.

Oil Bunkers (cont'd.)

Berth length - 530 ft.

Depth - 22

Gas available - delivered at terminal or by lighter.

Mem

Room for only 2 or 3 vessels of considerable tonnage at a time

Channel sound at Stegeborg has a depth of 17½ ft., at Ettersund, 15½ ft. Quayage - Public - 410 feet

Depth - 23 ft.

Mölle

Depth - 50 to 70 ft. in Roadstead

Vessels drawing 10 ft. of water can enter the harbor.

Quayage - landing quay - 150 ft.

Depth - 9 to 10 ft.

Nordmaling and Rundvik

Good anchorage

Depth.....16 to 23 ft. in harbor

" .....23 to 45 ft. in outer roads.

Quayage - Public - 394 ft.

Depth.....15 ft.

Norrköping

Navigation kept open by ice-breakers

Depth at Pampus - mouth of the river - 23 to 33 ft.

" at Norrköping - in channel from Pampus to the harbor - 23 ft.

" at south side of river - 23 ft.

" at north side of river - 23 ft.

Ships loaded to 21 ft. can always enter harbor under ordinary conditions.

Quay - Public - 14,200 ft.

Depth.....17 to 23 ft.

Grain elevator for vessels up to 5,000 reg. tons

Cranage - 31 electric - 2 to 20 tons.

1 pontoon crane - 16 tons

Norrköping cont'd.

2 pontoon cranes - 2 tons

Warehousing.....9,688 sq. ft.

Norrtälje

Good anchorage.....14 to 18 ft.

Quayage - 2 Public.

1st.....1180 ft.

Depth..... 20 ft.

2nd.....1400 ft.

Depth.....10 to 20 ft.

Cranage

1 electric.....1½ tons

1 hand crane.....5 tons

Nyköping

Depth at entrance to Port.....17 ft.

Quayage.....1,840 ft.

Can be reached by vessels drawing 16 ft.

Steamers can discharge at rate of 350 tons per day.

Nynäshamn

An ice-free outport of Stockholm, situated about 38 miles to the south on the open sea.

Harbor dimensions

Water area.....371 acres

Length of central part of harbor.....7,800 ft.

Breadth of central part of harbor.....1,600 ft.

Depth in harbor.....53 ft.

Quayage.....870 ft.

Four piers, combined length of quayage..... 300 ft.

Depth alongside quays.....16½ to 24½ ft.

Depth alongside piers.....10 to 24½ ft.

Vessels of all sizes can pass the north entrance channel, and vessels up to 16 ft. draught can pass the south channel.

Nynäshamn (cont'd)

Harbor practically ice-free during winter

Railway tracks on quays

Bunkers - coal, oil, paraffin and petrol stores.

Repairing yard for yachts.

Cranage - 1 electric - 8 tons.

Oaxen

Good anchorage, with a depth of 45 to 70 ft.

Quayage - 2 Private.

Depth - 16 to 20 ft.

Obbola (Umeå District)

Good anchorage.

Quayage

Depth.....17½ to 20 ft. by Pulp Quay.

Depth.....16 ft. by Sulphate and Limestone quay.

Steamers can load in the Roads to about 26 ft.

Öregrund

Piers

New Stone.....165 ft. long

Depth.....12 to 15 ft.

Old Wood

Depth.....12 to 13 ft. 9 in.

Coaling station at Gräsö with means to coal at pier - depth of 20 to 22 ft.

Bunkers - fuel oil tank of 250 tons capacity.

Öregrund's Slip and Yard

Depth alongside pier.....12 to 18 ft.

Cranage.....1 for 20 tons

Bunkers - Fuel oil tank of 250 tons capacity.

Örnsköldsvik

Vessels of largest size can pass entrance.

Good anchorage with depths from 23 to 80 ft.

Quayage - 3 Public

Örnsköldsvik (cont'd.)

1 Stone.....869 ft.

Depth.....19½ ft.

1 Wood.....361 ft.

Depth.....19½ to 23 ft.

1 Wood.....820 ft.

Depth.....13 to 19½ ft.

Stone quay belonging to State Railways....360 ft.

Depth.....24 ft.

Moälfen Wood Quay.....690 ft.

Depth..... 23 ft.

Depth of water at loading places:

Dansjö.....12-26 ft.

Köpmanholmen.....14-50 ft.

Husum.....15-33 ft.

Oscarshamn

Water area.....about 10 acres

Depth at entrance.....26 ft.

Quayage.....4,187 ft.

Depth.....8-2/3 to 24 ft.

Cranage - 1 for 6½ tons

Shears capable of lifting 50 tons.

Oxelösund

Depth in port.:.....20 to 36 ft.

Quayage

Passenger vessels.....200 ft.

Depth.....10 to 16½ ft.

Public No. 1 (for small vessels and lighters)....320 ft.

Depth.....8 to 10 ft.

Public No. 2 (for small vessels and lighters)....300 ft.

Depth.....10 ft.

Public No. 3.....600 ft.

Depth..... 8 to 19½ ft.

Oxelösund (cont'd)

Cranage – 3 steam – vessels can load at rate of 700 – 800 tons a day.

Public No. 4.....286 ft.

Depth.....24 ft. 4 in.

Cranage – 3 hoisting and conveying machines for discharging 600 to 1,000 tons of coal per day

– 1 electric – can be used for discharging vessels with four hatchways

Public No. 5 and 6.....235 and 303 ft.

Depth.....24 ft. 4 in.

Cranage.....4 electric for 3.3 tons each

Public No. 7.....280 ft.

Depth.....19½ ft.

Cranage – 4 electric of 3.3 tons each.

Vessels can load at rate of 1,400 tons a day.

Public No. 8.....336 ft.

Depth – available for vessels drawing 24 ft. 4 in.

Cranage – 4 electric of 3.3 tons each

– iron ore can be loaded at rate of 1,800 to 2,400 tons day.

– staiths discharging 25 to 30 tons per hour

Public No. 9.....417 ft.

Depth.....28 ft.

One conveyor belt for loading up to 750 tons of ore per hour.

Public No. 10.....736 ft.

Depth.....26 ft. 2 in.

Cranage.

1 hoisting and conveying machine-500 tons of ore per hour

1 steam crane – 3½ tons.

Private Quay – for discharging petroleum into 8 tanks of 10,000 barrels each.

Depth.....24 ft. 4 in.

One ice-breaker of 700 I.H.P. belongs to the Harbor

Oxelösund (cont'd.)

Oil Bunkering - Svenska Petroleum Aktiebolaget Standard

Tanks are located in the harbor.

Berth length.....540 ft.

Depth.....24 ft.

Delivered at terminal only at rate of 50 tons per hour.

Piteå

Vessels drawing 17 ft. can reach the public quays.

Depth outer harbor.....23 to 33 ft.

Sköthamn quay.....26 ft.

Vessels drawing 17 ft. can reach the public quays.

Ratan.

Depth.....15 - 16 ft. at normal water level at southern entrance channel.

" .....6 to 8 ft. at northern entrance channel.

" .....15 ft. alongside bunkering quay.

Private quay.....330 ft. long

Steamers can load in the Roads up to about 20 ft.

Ronehamn

Depth

Public pier.....14 to 14½ ft.

at entrance to inner and outer roadsteads and pier .....14 to 15 ft.

Good anchorage in inner or outer roadstead - depth from 15-16 ft. and from 22-33 ft.

Ronneby

Entrance channel - 200 ft. wide, 21 ft. deep.

Quayage on both sides

West side.....1,100 ft.

Depth.....12 to 21 ft.

East side.....1,679 ft.

Depth.....12 to 21 ft.

Sandvik

Good anchorage. Steamers can load up to 20 ft.

In Holmsund Roads vessels can complete loading cargo to about 26 ft.

Private quay.....330 ft.

Depth.....10½ to 29 ft.

Simrishamn

Depth

Entrance channel.....20 ft.

Outer harbor.....16-16½ ft.

Inner harbor.....16 ft.

Quayage - 1,640 ft.

Depth - maximum - 15½ to 16 ft.

Railway tracks on quays for a length of 1,115 ft.

Skelleftea

Öhrviken

Harbor depth.....28 ft.

Private pier.....14 to 16 ft. depth

Ursviken

Harbor depth.....13 ft.

Public pier depth.....13 ft.

Savenäs

Harbor depth.....28 ft.

Private pier depth.....15 ft.

Rönnskär - Private pier - 1,229 ft. long.

Depth - 20 - 26 ft. by quay.

Railway from Skelleftea Harbor

Cranage - 5 electric

North Quay.....943 ft.

Depth.....21 to 24½ ft.

Tvär Quay.....404 ft.

Depth.....8 to 15 ft.

Depth in harbor.....27 to 42 ft.

Cranage - 2 cranes - 10 and 1 tons.

Skellefteå (cont'd)

7 Railway tracks from the State Railway on the Quay

Skutskär

Depth

East part.....12 to 18 ft.

West part.....11½ ft. at quay

18 ft. at loading bridge of Harnäs

19 ft. at basin

Maximum variation on account of winds - 3 ft.

Harbor accessible to vessels drawing 19 ft.

Slite

Depth

In roadstead.....26 to 27 ft.

Entrance to port.....23 to 24 ft.

North side of the large bridge....23-24 ft. for a length about 430 ft.

South side and at the small bridge.....16 to 17 ft.

At quayside of the bridge of the cement factory...18-19 ft.

Söderhamn

Vessels drawing 14½ ft. can go up to the city. Those drawing more must discharge at Stugsund, two miles from the city.

Stugsund (port of Söderhamn) - 7 miles from the sea at Lilljungfrun

Depth.....varies in harbor from 19 to 22 ft.

Several timber-shipping ports in the river with water depth the same as at Stugsund.

New fairway from the sea to Branthäll roads has a depth of 25 ft.

Quayage

Granite quay - 3,300 ft. long....

Depth - 22 ft. for a length of 2,300 ft.

.....- 20 ft. deep at upper part for 1,000 ft.

Railway track along the quay.

Södertälje

Ships with draught up to 23 ft. can enter from Baltic.

Södertälje Outer Harbor

Depth at entrance to Port.....22 ft.

Depth in port.....16-22 ft.

Quayage.....825 ft.

Depth..... 22 ft.

Cranage - 2 portable electric - 5 and 6 tons.

Railway tracks connect with state railway system

Saltsjö Harbor

Situated inside eastern part of Södertälje Canal.

Quayage.....429 ft.

Depth.....12 to 14 ft.

Bunkers - coal and fuel oil.

Mälare Harbor

Situated at northern mouth of Södertälje Canal.

Quayage.....1,560 ft.

Depth.....12 to 18 ft.

Cranage - 1 of 2 ton capacity.

1 warehouse

Södertälje Canal (See Appendix on canals for details)

Sölvesborg

Good anchorage

In inner roads for vessels drawing up to 17 ft.

In outer roads for vessels drawing 19 ft. 6 in.

Channel leading to outer roads only available for vessels drawing 18 ft.

Quayage

300 ft. in outer roads - connected with town by railroad.

1,800 ft. in inner roads.

Cranage

2 electric of 15 and 20 tons

1 for 2 tons

1 in outer harbor - 15 tons

1 electric portal with grabs - 6 ton

Open water in the outer roads all year round.

Good ice-breaker, fresh-water boat, and tug-boat available

Oil Bunkers - Svenska Petroleum Aktiebolaget Standard.

Tanks located 984 ft. southwest of Harbor Office.

Berth Length - 415 ft.

Depth - 18 ft.

Gas available only - delivered at terminal

Stockholm

Warehouses

Location	Number	Floor surface square ft.	Distance from berth(ft.)	General Statement.
Stadsgårds Harbor	1	107,617	56	6 freight elevators
" "	small custom-house	15,026	79	2 " "
" "	large custom-house	79,824	39	7 " "
" "	Warehouse I	9,903	39	passenger and 2 platform elevators.
" "	Warehouse II	15,156	39	1 freight elevator, 1 hand power crane.
" "	Custom House	34,574	43	3 freight elevators 2 lift platforms
" "	Office & Storage	29,891	180	
Skeppsbro Harbor	South custom house	10,818	98	
" "	Middle " Pavillion	4,682	89	
" "	North " "	5,500	89	
North Blasieholmen Harbor	Custom house	6,286	98	
	Warehouse I	5,382	62	
	Warehouse II	5,382	62	
Värtan Harbor	Warehouse	11,356	not situated at the berth	
" "	"	2,185	" " " " "	

Location	Number	Floor Surface Square feet	Distance from berth (ft)	General Statement
North Hammar				
City harbor	Custom-house	24,757	90	
Henriksdals Harbor	Building	8,524		not situated at the berth
Riddarholms Harbor	Custom-house	3,229	121	
" "	Warehouse I	7,524	26	
" "	Warehouse II	5,597	26	
" "	Warehouse III	7,427	26	
North Mälarstrand	Storage	8,611	46	

Cranes (belonging to the town)

Situation	No.	Type of Crane	Capacity (short tons)
North Mälarstrand	3	Electric Jib (with grab bucket)	2.75-5.51
South "	2	" " " " "	2.75-3.85
Kungsholmsstrand	1	" " " " "	2.75
"	1	Hand Power	5.51
Barnhusstranden	1	Electric Jib(with grab bucket)	2.75-5.51
Årsta	1	Stationary electric	3.31
Stadsgårds Harbor			
(east)	4	Electric whole gantry with lever crane	2.75
" "	4	Electric whole gantry	5.51
" "(middle)	10	Electric half gantry	2.75-5.51
" "(west)	7	Electric whole gantry with lever	2.75-5.51
" "	3	Electric whole gantry	2.75-5.51
Skeppsbro	2	Electric whole gantry with lever	5.51
Blasieholm Harbor	1	Hand Power crane (stationary)	11.02
Strandvägen	2	Electric jib	2.75-5.51

Cranes (belonging to the town) cont'd.

Situation	No.	Type of Crane	Capacity (short tons)
Värtan harbor-north quay	2	Electric whole gantry (grab bucket)	5.51
" " "	2	Electric whole gantry with lever	6.61
" " "	2	" " " " "	5.51
" " "	2	Electric bridge cranes	6.61
Inner basin quay	2	Electric whole gantry (bucket)	2.75
South basin quay	5	Electric bridge cranes	3.86
" " "	"	" " " (bucket)	5.51
South quay	6	Electric whole gantry cranes (bucket)	5.51
" "	2	Electric bridge (bucket)	11.02
" "	1	Electric Jib (bucket)	7.16
Gas Works Harbor	2	Electric whole gantry (bucket)	8.26
" " "	2	" " " "	4.96
" " "	4	Steam gantry cranes	1.32
" " "	1	Electric Jib crane	1.65
Hammarby Harbor, North	1	Electric whole gantry crane(stationary)	22.04
" "	12	Electric bridge cranes (bucket)	5.51-6.61-
" "	1	" " " "	5.51
" "	3	Electric bridge crane with lever	3.31
" "(south)	1	Electric whole gantry-lever and bucket	5.51

Cranes Not Belonging to the Town

Värtan harbor, north quay	1	Electric Jib (bucket)	2.75
" " "	2	" " "	6.61
Basin quay	2	" " "	5.62
" "	2	Electric whole gantry (bucket)	5.73

Floating Cranes (Belonging to the Town)

Portable	2	Steam swing (bucket)	4.41-2.20
"	1	" "	16.53
"	1	Steam lever crane	66,13-44.09

Floating Cranes (Belonging to the Town)

Situation	No.	Type of Crane	Capacity (short tons)
Portable	1	Diesel crane	6.61
"	1	Diesel crane (bucket and lever)	6.61

Floating Cranes (not Belonging to the Town)

Portable	5	Steam swing (bucket)	1.61-3.86
"	1	" "	4.41
"	2	" "	6.61
"	1	" "	3.31

Other Mechanical Euipment
(belonging to the Town)

Situation	No.	Type	Lifting and Pulling Power in short tons
Stadsgård Harbor	3	Hauling winches	.66-1.10
" "	1	Gantry scale	11.02
" "	1	Platform scales	16.53
" "	1	Crane scale (portable)	8.26
Skeppsbro	1	Gantry scale	11.02
Blasieholms Harbor, north	1	Gantry scale	11.02
Värtan Harbor, north quay	6	Hauling winches	.66-1.10
South basin quay	4	Hauling winches	.66-1.10
South Quay	7	Hauling winches	.66-1.10
Värtan Harbor	1	Crane scale(portable)	9.92
Hammarby Harbor, north	1	Crane scale	9.37
" " "	3	Hauling Tractors	ca.1.10

Othe Mechanical Equipment
(Not Belonging to Town)

Situation	No.	Type	Lifting and Pulling Power in metric tons
Värtan Harbor, north	12	Hauling winches	.66-1.10
Railway	1	Railway scale	44.09
Värtan Harbor	4	Platform scales	11.02
Värtan Harbor	1	Platform scale	13.22
Hammarby Harbor, north	2	Platform scales	11.02

Berths

Situation	Type	Length ft.	Depth at average state of water (ft.)	Height over the surface at average state of water.	No. R.R. Tracks
Mälaren:					
Kornhamnstorg and Mälatorget	Stone or concrete	1,066	11.8-14.76	4.42	—
Munkbrohamnen	"	571	21.64-24.6	4.1	—
Riddarholmshamnen	"	1,877	11.8-14.76	5.24-5.57	—
Tegelbacken	"	374	8.52-11.48	5.08	—
Klara Mälarstrand	Wood	679	11.8-14.76	5.41	—
North Mälarstrand	Stone or concrete	3,173	8.52-18.04	5.24-5.57	—
Rålambshov's Harbor	Wood	361	8.52-11.48	3.6	—
South Mälarstrand	"	5,308	11.8-14.76	3.93-4.26	-2
Sjöbergs plan	"	220	11.8-14.76	6.88	—
Kungsholms strand	Stone or concrete & wood	1,388	8.52-14.76	4.26-5.24	—
Klara strand	"	991	8.52-11.48	5.57	—
Barnhustranden	"	2,539	11.8-14.76	4.92	1
Traneberg quay	Wood	331	8.52-11.48	4.59	—
Little Essingen	Iron tongues	131	11.8-14.76	—	—
Oxhals Harbor	Stone or concrete	197	11.8-14.76	5.24	—
Liljeholms Quay	"	659	8.52-14.76	6.56	—
Arstadals Harbor	Iron tongues stone or concrete.	328	18.36-21.32	5.9	—
Certain Quays	Iron tongues and wood	1,900	8.2-14.76	3.28-4.92	—
Outside Mälaren:					
Stadsgård's Harbor	Stone or concrete & wood	4,659	18.36-27.88	5.57-8.2	2
Skeppsbro Harbor	"	2,789	8.52-21.32	4.92-9.51	2
South Blasieholm's Harbor	Stone or concrete	1,368	11.8-14.76	5.9-8.52	—
North " "	Stone or concrete & wood	1,243	15.08-21.32	4.92-8.52	—

Berths (Cont'd)

Situation	Type	Length ft.	Depth at average state of water (ft.)	Height over the surface at average state of water.	No. R.R. Tracks
Freeport Blasieholms	Harbor -Stone or concrete	3,996	25-34	6.56-7.54	2-3
Nybro quay	Stone or concrete and wood	922	11.8-14.76	4.92-5.24	—
Strandvägen	Stone or concrete	2,759	11.8-14.76	4.92	—
Värtan Harbor	Stone or concrete and wood	8,438	18.36-27.88	6.56-8.85	2-3
Oil Harbor	Loading bridges	- -	18.04-29.52	6.56-8.52	1
Gas works harbor	Stone or Concrete and wood	1,398	11.8-27.88	7.21	—
North Hammarby Harbor	"	820	8.52-11.48	5.24	—
South " "	"	1,043	18.36-21.32	8.2	—
Henriksdals Harbor	Wood	98	12.79-	4.92	—
Certain quays	"	108	8.2	6.23	—

Oil Bunkers

Svenska Bensin and Petroleum A.-B.

Unlimited berthing space in Louden Oil Harbor

Depth.....30 ft.

Gas only available-delivered alongside wharf at rate of 100 tons per hour.

Svenska-Engelska Mineralolje A.-B.

Berthing space.....500 ft.

Depth.....29 ft.

Oils available-fuel, Diesel, and gas - delivered from shore plant by pipelines and from lighters.

Svenska Petroleum Aktiebolaget Standard.

Tanks located at Värtan and St. Hogaru Island.

Berth length

Värtan-----518 ft.

Depth------25 ft.

St. Hogaru---542 ft.

Depth--------29 ft.

Fuel and gas oils available---delivered at terminal or by lighter.

Strömstad

Depth

At Steamboat pier in Inner harbor - 15 ft.

Three piers in North Harbor for vessels drawing 16 ft.

Three piers in South Harbor for vessels drawing 24½ ft.

South Harbor at Torskholmen - quay for vessels drawing 15 to 23 ft.

- small basin with two breakwaters and a concrete jetty having depth alongside of 12 to 16 ft.

Anchorage in Inner Harbor - depth of 36 ft.

Anchorage south of Längö - depth of 60 to 90 ft.

Sundsvall and District

Quayage - Public - 13,900 ft.

Depth - 9 to 27 ft.

Depth in Harbor - 9 to 27 ft. Good anchorage.

Cranage - 1 for 15 tons.

Two floating cranes with grabs - 4 tons each.

Two electric portable jib cranes - 5 tons.

Kubikenborg and Heffners

Quayage - 1 Private

Depth.....10½ to 17 ft.

Good anchorage with a depth of 30 to 58 ft.

Closed by ice about middle of January.

Skönvik

Quayage - 1 Private

Depth.....8 to 13½ ft.

Anchorage with a depth of 52 to 87 ft. - open to N.E. winds

Nyhamn

Depth

In port.....33 to 40 ft.

Private pier.....12 to 22 ft.

Good anchorage

Vifstavarf

Depth

Private piers.....11½ to 24 ft.

Anchorage.....23 to 46 ft.

Other Private Loading Places in the Sundsvall District

Name of Saw Mill or Loading Place	Length of Quay (ft.)	Depth Alongside Quay (ft.)	Depth at Loading Place (dolphins) (ft.)
Ankarsvik	400	15 to 28	16 to 28
Carlsvik	220	24	30 to 40
Essvik	300	18	22
Fagervik	200	18	20 to 33
Gustafsberg	100	18	22 to 30
Hofvid	200	12 to 20	22 to 35
Johannedal	150	23 to 36	30 to 64
Johannesnäs	500	30 to 40	27 to 48
Klampenborg	500	11 to 19	14 to 36
Sund	150	15	20 to 32
Söråker	150	12 to 16	16 to 20
Nya Söråker	—	—	12 to 26
Strand	230	13 to 35	24 to 40
Svartvik	500	15 to 25	24 to 35
Tunadal	500	18 to 25	18 to 36
Ortviken	600	18 to 20	18 to 23
Östrand-quay	500	28	
	330	24½	

Trälleborg

Water area.....about 37 acres

Depth

In entrance channel.....23 ft.

In harbor.....23 ft.

Cranage

Two 5-ton travelling, and one 6-ton bridge-crane.

New Harbor - Two 5-ton travelling and one 6-ton bridge crane.

Old Harbor - One 5-ton stationary and one 5-ton bridge crane.

Grain elevator with capacity of 100 tons per hour.

Warehousing - 17,663 sq. ft.

Uddevalla

Depth

On bar at Sunningen Sound - 2½ miles from Uddevalla - 25 ft.

Entrance channel to inner harbor - 160 ft. wide.
22 ft. depth for 100 ft.

Anchorage depth at Byfjorden - 40 to 50 ft.

Excellent harbor

Quayage - Public

Depth - 12 to 22 ft.

Umeå

River affords about 11 to 13 ft. in places, but large vessels can enter the outer roads within the limits of Umeå harbor.

Umeå outpost - situated at Holmsund, about 2½ miles inside Bredskär.

Quayage.....1,115 ft.

Depth.....20 to 23 ft.

Varberg

Roads are easy of access. Good anchorage in about 21 ft.

Depth - vessels drawing not more than 16 ft. can always run in between the Castle and Varberg lighthouse.

At entrance to inner harbor.....25 ft.

From west end of the north breakwater and in the north basin .....23 ft. 9 in.

Good anchorage in about 21 ft.

Quayage.....3,500 ft.

Depth.....23 ft. 9 in. for 427 ft., 18 ft for 650 ft., and 16 ft. for the rest at mean water.

Cranage - 1 hand crane - 6 tons.

2 coal discharging cranes - capacity of 80 tons per hour each.

Bunkers - coal. Fresh water from pipes on quayside.

Railway on all quays with good connections to all parts of Sweden.

Oil Bunkers

Svenska Petroleum Aktiebolaget Standard.

Tanks located within Harbor, eastern quay.

Berth length - unlimited

Depth.....22 ft.

Gas available only - delivered at terminal or by tank truck to all harbor docks.

Västerås

Deep harbor.

Quayage..... 670 ft.

Depth..... 21 ft.

Cranage - 2 electric - 8 and 50 tons.

1 electric bridge crane - 12 tons.

1 portable electric - 5 tons.

1 ore trimmer - 400 tons per hour.

Railway connection with the quay. A breakwater running parallel to latter.

Good anchorage.

Old Harbor

Quayage

Stone quay.....1,320 ft.

Cement quay.....1,660 ft.

Wood quay.....818 ft.

Depth.....11.4 to 16.4 ft.

Cranage - 8 electric of 2 to 6 tons.

Grain elevator discharging 50 tons per hour.

Railway connections with the quays.

Good anchorage.

Quay belonging to State.....460 ft.

Depth alongside.....20 ft.

Vessels entering Västerås must pass through the Södertälje Canal, or the new Hammarbyleden Canal, available for vessels of 18 ft. draught.

Västervik

Good anchorage, in 36 to 40 ft.

Harbor equipped with powerful fire-fighting tug which can also be used as an ice-breaker..

Depth

At entrance to outer port.....26 ft.

At entrance to inner port.....19½ ft.

Quayage

Railway quay.....748 ft.

Depth.....8.2-18 ft.

Storage quay.....984 ft.

Depth.....19.7 ft.

Lilla quay.....394 ft.

Depth.....13 ft.

Ballast quay.....100 ft.

Depth.....14.8 ft.

Lujerna quay.....330 ft.

Depth.....26 ft.

Haak's quay.....103 ft.

Depth.....13 ft.

Spannmåls quay.....230 ft.

Depth.....16.4 ft.

Fish Harbor Basin

Quayage

Strandvägs quay.....426 ft.

Depth.....8.2 ft.

West Pier.....446 ft.

Depth.....13 ft.

East Pier.....105 ft.

Depth.....13 ft.

Old Pier.....230 ft.

Depth.....8.2 ft.

Vaxholm

Several piers with a maximum depth of 11 ft. 10 in.

Good anchorage, with a depth from 40 to 90 ft.

Viken

Good anchorage west of Viken harbor light.

Entrance direct from sea with a depth of 8 ft.

Quayage.....1,400 ft.

Depth.....10 ft.

Cranage - Hand crane for 2 tons.

Visby

Depth

Anchorage in roads in about 140 ft. of water. Sheltered only from East and South winds.

At entrance to Visby harbor - average of 23 to 21 ft. at lowest water.

Outer Harbor

Protected by breakwater 1,800 ft. in length.

Depth.....16½ ft. at lowest water to 18 ft. average.

Quayage.....1,100 ft. inside the breakwater.

Depth.....16½ to 18 ft.

Quayage.....460 ft. on eastern side of the harbor.

Depth.....up to 18 ft.

Inner Harbor

General depth.....16-17 ft. average.

Quayage.....1,900 ft.

Depth.....16 to 17 ft.

Wallvik (Vallvik)

Outer harbor can be entered by vessels drawing 30 ft.

Good anchorage in about 5 fathoms.

Quayage - 1 Private - 1,200 ft.

Depth.....17 to 27 ft.

Ystad

Water area.....about 850,000 sq. ft.

Depth in entrance channel.....20½ ft.

Quayage.....3,700 ft.

Depth.....20 ft.

Note: No recent figures available on coal bunkering facilities. For capacity and supply in 1932 see Foreign Bunkering Stations and Charges Against Vessels, Foreign Port Series No. 3, United States Department of Commerce and U. S. Shipping Board, 1932.

Appendix XXIV

Dry and Floating Dock Facilities

PORT.	NAMES OF DOCKS, PONTOONS, PATENT SLIPS, &c.	DRY & FLOATING DOCKS. Extreme Length.	Length on Bottom.	Breadth at Entrance.	Breadth at Head of Dock.	Depth on Sill at Ordinary Spring Tides.	PONTOONS, PATENT SLIPS, GRIDIRONS, &c. Extreme Length.	Breadth.	Depth over Sill at Ordinary Spring Tides. Forward.	Aft.	Lifting Power.	Number of Vessels it can take.	PROPRIETORS.	OTHER PARTICULARS.
SWEDEN. (*No tidal waters.*)														
Carlskrona	Old Dock	279' 8	214' 11	45' 11	3' 7	17' 6 on blocks	...	...	...	...	...	..	Government	
do.	Dock, No. 1	216' 8	182' 4	46' 4	1' 9	18' 6 on blocks	...	...	...	...	...	...	do.	
do.	do. No. 2	305' 2	253' 7	51' 9	2' 1	19' 0 on blocks	...	...	...	...	...	...	do.	Dock No. 2 can take vessels 279 ft. 6 ins. long.
do.	do. No. 3	221' 1	192' 4	46' 6	2' 1	19' 0 on blocks	...	...	...	...	...	...	do.	
do.	do. No. 4	236' 8	203' 0	46' 6	2' 6	20' 0 on blocks	...	...	...	...	...	...	do.	Dock No. 4 can take vessels 226 ft. 6 ins. long.
do.	do. No. 5	233' 9	200' 9	46' 3	2' 6	19' 8 on blocks	...	...	...	...	...	...	do.	
do.	Oscar II. Dock	459' 4	430' 4	68' 2	4' 3	25' 8 on blocks	...	...	...	...	...	...	do.	
do.	Patent Slip	...	...	...	...	...	181' 0"	...	9'10	9'10	295	...	do.	
Falkenberg	do.	...	...	...	...	...	370' 0	59' 0	9' 2	13' 4	...	...	Harbour Commissioners	Can take vessels 100 ft. in length.
Fiskebackskil	Lyckans Slip	...	...	...	...	...	480' 0	120' 0	10' 0	22' 0	150	...	A B Lyckans Slip	
Forsvik	Patent Slip	...	...	...	...	...	265' 8	85' 3	4'11	11' 6	200	...	A B Forsviks Bruk	Can take vessels up to 108 ft. long (1908.)
Furusund	Furusund Slip ..... I.	...	...	...	...	...	480' 0	100' 0	9' 0	16' 0	600	...	Stockholms Transp. och Bogs Aktieb. (Managing Director E. Appelquist.)	Capable of taking on vessels of 300 tons gross.
do.	do. do. II	...	...	...	...	...	410' 0	270' 0	8' 0	13' 0	250	...	do. do.	
do.	Blidösunds Varf Patent Slip	...	...	...	...	...	438' 0	131' 0	4' 6	11' 5	600	...	Rederiaktieb. Ljungan (Managing Director—H. Jansson)	Cradle in two sections.
Gefle	Slipway	...	...	...	...	...	900' 0	219' 0	7' 0	14' 8	1550	...	GävleVarvs-ochVerkstadsNya Aktiebolag (Manager—P. A. Hedlund)	Capable of taking on vessels 275 ft. long and 1800 tons gross. Sheers, 45 tons.
Gothenburg	Lindholmens Dry Dock ...	405' 0	492' 0	57' 5 top 56' 6 bottom	3' 5	19' 5	...	...	...	...	...	...	A B Lindholmens Varv	..
dc.	Lindholmens Patent Slip No. 1	...	...	...	...	...	540' 0	215' 6	7' 0	18' 0	1000	...	do. do.	Sheers 30 tons.
do. (*cont.*)	do. No. 2	...	...	...	...	...	540' 0	251' 6	7' 0	15' 0	600	...	do. do.	

Under "other particulars," entries such as "26 ft.; 14 ft. 9 ins." denote depths on sill at H.W., *highest* springs and *lowest* neaps respectively.

Appendix

PORT.	NAMES OF DOCKS, PONTOONS, PATENT SLIPS, &c.	DRY & FLOATING DOCKS. Extreme Length. — Length on Bottom.	Breadth at Entrance	Height of Sill above Bottom of Dock.	Depth on Sill at High Water, ordinary Spring Tides.	PONTOONS, PATENT SLIPS, GRIDIRONS, &c. Extreme Length.	Length of Cradle.	Draft on Keel Blocks at High Water, ordinary Spring Tides. Forward.	Aft.	Lifting Power.	Difference between H.W. at ordinary Springs and at ordinary Neaps.	PROPRIETORS.	OTHER PARTICULARS.
SWEDEN—*continued.*													
		ft. in.	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*Tons.*	*ft. in.*		
Gothenburg—	Floating Dock ..... Götaverken No.2 (Steel)	594· 8	82· 0	...	28· 0	...	...	...	...	18000	...	A. B. Götaverken (Lease d from A. B. Göteborgs Skeppsdockor)	Re-built 1926. Floating Crane 60 tons. Floating Crane 90 tons.
do.	Floating Dock ..... Götaverken No.1 (Steel)	406· 8	82· 0	...	25· 0	...	...	...	...	8000	...	do. do.	Re-built 1930. Cranes 5 tons.
do.	Patent Slip No. 1	...	...	..	...	660· 0	255· 0	6· 6	22· 0	1400	...	A. B. Götaverken	It is expected that these slipways will not be available after April, 1939. (Dec. 1938.)
do.	do. No. 2	...	...	...	...	528· 0	185· 0	5· 6	15· 0	900	...	do. do.	
do.	Steel Floating Dock No. 1	230· 0	44· 6	5· 0	17· 0	...	...	...	...	1800	...	Aktiebolaget Eriksbergs Verkstads Flytdockor	Built 1918. Can take vessels up to about 275 ft. long.
do.	do. do. No. 2	416· 6	66· 0	4· 0	23· 0	...	...	...	...	7500	...	do. do.	Built 1921. Can take vessels up to 475 ft. long. Cranes 15 and 6 tons. Floating Crane 80 tons.
do.	do. do. No. 3	643· 0	92· 0	4· 0	29· 0	...	...	...	...	22500	...	do. do.	Built 1924. Can take vessels up to 700 ft. long. Cranes 15 and 6 tons.
do.	Patent Slip	...	...	...	...	500· 0	165· 0	5· 0	15· 0	...	...	Eriksbergs Mek. Verkstads Aktiebolag	Can take vessels 500 d.w
Gotland	Nil	...	...	...	...	...	...	...	...	...	...		
Grisslehamn	Grisslehamn's Varv... ..	...	...	...	...	300· 0	110· 0	6· 0	10· 0	250	...	T. E. Jansson	
Halmstad	Slipway	...	...	...	...	459· 0	147· 6	9·10	16· 5	1000	No tides	Halmstads Varvs Nya Aktiebolag	Can take vessels up to 130 ft. long.
do.	do.	...	...	...	...	393· 0	118· 0	7· 2	13· 8	450	do.	do. do.	Can take vessels up to 110 ft. long. Hand crane, 3 tons.
Helsingborg	Helsingborg Dry Dock ...	308· 0 / 289· 0	45· 3 top 39· 0 bottom	4· 3	13· 1	...	...	...	...	...	...	Helsingborgs Hamn	Can take vessels 280 ft. long. Electric crane, 60 tons.
do.	do. do.	373· 0 / 367· 0	52· 6 / 52· 6	2·11½	18· 1	...	...	...	...	...	...	do. do.	
Hernösand (Gustafsvik)	Dry Dock	462· 0	68· 9	4· 6	26· 2	...	...	...	...	...	...	Aktieb. Mohögs Mek. Verkstad, Sundsvall. (Manager— Anton Östman)	Stationary crane, 12 tons. Travelling crane, 3 tons.
Kalmar	Kalmar Patent Slip	...	...	...	...	560· 0	185· 0	8· 0	15· 0	600	...	Kalmar Varf	Crane, 10 tons.
Karlshamn	Karlshamns Skeppsvarv (at Helenesberg)	...	...	..	..	492· 0	149· 3	...	15· 0	800	...	Karlshamns Skeppsvarv	Crane, 50 tons.
Karlstad	Patent Slip	...	...	...	...	...	140· 0	5· 0	14· 8	250	...	Värmlands Rederiaktiebolag, Karlstad Varv.	Can take vessels up to 155 ft. long.
Landskrona	Graving Dock	631· 9 / 621· 0	80· 0	4· 0	25· 3	...	...	...	...	...	...	Öresundsvarvet A.B.	Crane, 80 tons. Dock can be divided into two parts, 354 ft. long and 262 ft. 9 ins. respectively.
do.	Floating Dock	300· 0	50· 5	...	15· 0	...	...	...	...	2700	...	do. do.	
do.	Landskrona Slip	...	...	...	...	300· 0	115· 0	7· 0	10· 0	300	...	A. B. Gustafsson & Söners Skeppsvarv	Can take vessels 120 feet in length. Hand crane, 3½ tons.
Limhamn	Dry Dock	117· 0	27· 2	...	5· 0	...	...	...	...	...	...	Skånska Cementaktiebolaget	Used by the owners for the repair of their own lighters.
Löddöe	Löddöe Varfs Slipway.....	...	...	...	...	142· 0	134· 0	6· 0	16· 0	...	...	Aktiebolaget Löddöe Varf	Can take vessels up to 155 ft. long.
Luleå	Patent Slip	...	...	...	...	400· 0	80· 0	6· 0	15· 0	500	No tide	Aktieb. Luleå Varf och Verkstader	
do.	do.	...	...	...	...	440· 0	60· 0	12· 0	14· 0	300	do.	Luleå Harbour Board	
Lysekil	Eastholmen Patent Slip...	...	...	...	...	150· 0	140· 0	6· 0	16· 0	200	...	A.B. Bolinder Munktell	Can take vessels up to 200 tons gross.
do.	Fridhem No. 1	...	..	...	...	213· 1	110· 0	7·10	13· 9	300	...	Skandia Verken, Aktiebolag	
do.	do. No. 2	...	...	...	...	213· 1	80· 4	6·10	13· 9	150	...	do. do.	
Malmö	Dry Dock	534· 7 / 534· 9	78· 7	1· 8	22· 2 20· 2 (on blocks)	...	...	...	...	...	No tide	Harbour Commissioners	Can take vessels 525 feet long.
do.	do.	210· 0 / 196· 0	34· 0	3· 6	12· 0	...	...	...	...	...	...	do. do.	Can take vessels 205 feet long
Marstrand (cont.)	Slipway I.....	...	...	...	...	110· 0	119· 0	10· 7	14· 1	450	...	A.-B. Marstrands Mek. Verkstad	

Dernière colonne : les insertions telles que "26 ft. ; 14 ft. 9 ins." désignent les profondeurs d'eau sur le seuil aux marées hautes de *plus fortes* vives-eaux et de *plus faibles* mortes eaux

Appendix

PORT.	NAMES OF DOCKS, PONTOONS, PATENT SLIPS, &c.	DRY & FLOATING DOCKS. Extreme Length. — Length on Bottom.	Breadth at Entrance	Height of Sill above Bottom of Dock.	Depth on Sill at High Water, ordinary Spring Tides	PONTOONS, PATENT SLIPS, GRIDIRONS, &c. Extreme Length.	Length of Cradle.	Draft on Keel Blocks at High Water, ordinary Spring Tides. Forward.	Aft.	Lifting Power.	Difference between H.W. at ordinary Springs and at ordinary Neaps.	PROPRIETORS.	OTHER PARTICULARS
EUROPE—*continued.*													See Footnote.
SWEDEN—*continued.*													
		ft. in.	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*Tons.*	*ft. in.*		
Marstrand—*cont.*	Slipway II.	...	...	...	...	140 0	88 0	10 7	14 1	300	...	A.-B. Marstrands Mek. Verkstad	
do.	do. III.	...	...	...	...	140 0	101 0	10 7	14 1	300	...	do. do.	
Mem	Göta Kanals Torrdocka	283 3 / 272 9	24 9	...	9 6	..	...	...	...	...	...	O. & F. Hegvaldt (Address: Skeppsdockan, Söderköping)	This dock is situated about 4 miles up the Göta canal. It is only available for vessels of 106 feet length, 23·4 feet beam, and drawing 9·5 feet as a maximum.
Motala	Dry Dock	330 0 / 330 0	24 4	1 0	9 7	..	...	...	...	...	..	Aktiebolaget Motala Verkstad	Can take nine ordinary canal steamers of 103 ft. long by 21·9 ft. broad.
Norrköping	Norrköpings Slip	...	...	..	...	700 0	450 0	6 6	21 6	1800	...	A/B Norrköpings Varv-& Verkstad	Can take vessels up to 3,000 tons D.W.
Öregrund	Patent Slip	...	...	..	...	328 0	131 2	8 9	16 4	...	...	Öregrunds Slip & Varfs Aktiebolag (Manager — Edw. Storm)	Can take vessels up to 600 tons.
Oxelösund	Oxelösunds Slip	...	.	.	..	500 0	200 0	9 0	14 0	300	...	Jerfeds Mek. Verkstads Aktiebolag (Manager—Erik Wikland)	Only used for small vessels, tugs, &c. 4 Sheers, 25 tons.
Oscarshamn	Oscarshamns Dry Dock	355 0 / 344 6	48·11	4 6	15 0	...	...	...	...	..	..	A/B. Oscarshamns Varv. (Robert Amels)	Can accommodate vessels up to 5,500 tons Sheers 50 tons.
do.	Patent Slip	...	...	...	...	850 0	350 0	10 0	25 6	3000	...	do. do.	Capable of taking up vessels of 7,000 tons D.W.
Pitea	Kil	...	...	...	...	...	...	...	...	...	...		
Råå	Råå Slip	..	...	...	...	140 0	120 0 / 140 0	8 0 / 7 0	10 0 / 10 0	400	No tides	Aktiebolaget Holms Skeppsvarv	Can take vessels 135 feet long. Hand cranes, 3 and 6 tons.
Ronneby (Ronnebyverk)	Patent Slip	...	..	...	...	480 0	25 0	6 0	10 0	30	3 0	Harbour Commissioners	
Sjöstorp	Sjöstorp's Dry Dock	— / 213 0	22 9	2 3	7 5	...	...	..	...	...	...	Sixten Grotha Eftr.	
Silvesborg	Dry Dock	289 6	44 6	4 0	13 0	...	...	..	...	...	..	Silvesborgs Varvs- & Rederiaktiebolag	Can take vessels 285 feet long and 44 feet broad.
Stockholm	Galervarfvet	438 0 / 413 0	58 5	2 8	23 0	...	...	...	..	.	...	Government	Available for merchant vessels Sheers 50 tons The first length given is at water line.
do.	Gustav V:s Docka, Beckholmen	462 8 / 460 0	82 0	3 9	31 6	...	...	...	...	..	...	do.	Length can be extended to 499 ft. 4 in. on bottom. Available for merchant vessels. Can be pumped out in about 2½ hours.
do.	Östra Dockan, Beckholmen	326 0 / 326 0	54 4	4 6	17 0	...	..	...	.	.	...	Aktieb. Finnboda Varf (Manager, C. B. Hansen)	
do.	Västra Dockan, Beckholmen	317 6	33 0	4 6	13 0	...	..	..	...	...	...		
do.	Finnboda Pontoon Dock (Clark & Standfield's Patent) (Steel and iron)	343 0	...	...	15 3	...	..	...	...	2100	..	do. do.	Built 1898.
do.	Finnboda Slip	...	...	..	...	730 0	227 0	7 6	17 6	1600	...		
do.	Hjälmarevarfvet Slip	...	...	..	...	280 0	135 0	7 0	13 0	280	...		
do.	do. do.	..	..	..	...	283 0	170 0	3 0	8 6	120	...	Stockholms Stad. (E. E. Hilsson)	
do.	Ekensberg Slip I	..	...	...	...	308 0	89 0	7 8	11 4	80	...		
do.	do. do. II	...	...	...	...	466 0	164 0	8 0	18 4	300	...	A. B. Ekensbergs Varv. (Manager—E. Pira)	
do.	do. do. III	...	...	...	...	656 0	164 0	10 0	20 0	1200	...		
do.	Ekensbergs Varvs Floating Dock (Steel and iron)	308 9	46 9	Level	14 0	...	...	...	...	1600	...	do. do.	Built 1891. 3 sections. Sheers 80 tons.
do.	Elektriska Svetsnings Aktieb. Pontoon Dock (Steel and iron)	100 0	29 6	...	12 6 (on blocks)	...	...	..	...	350	...	Elektriska Svetsnings Aktiebolaget (Manager, A. Magnussen)	Built 1911.
do.	do. do. (Steel)	183 9 / 131 3	36 8	...	11 9	...	...	...	...	1000	...	do. do.	Will be ready for use from 1st April, 1939. (Jan. 1939.)
Strömstad	Nil	...	...	...	...	...	...	...	...	...	...		
Sundsvall	Sunds Bruk Patent Slip	...	..	..	...	398 0	136 0	7 0	13 0	900	...	Sunds Aktiebolag	Can take vessels up to about 150 ft. long with 7½ ft. draft. Crane, 25 tons.
do.	Mohlins Patent Slip	...	...	...	...	377 3	131 2	7 9	14 8	550	...	Aktieb. Mohlins Mek. Verkstad (Manager—Anton Ostman)	Can take vessels up to 170 ft. long and 7·9 ft. draft forward.
Uddevalla	Nil	...	...	...	...	...	...	...	...	...	...		

Under "other particulars," entries such as "26 ft.; 14 ft. 9 ins." denote depths on sill at H.W., highest springs and *lowest* neaps, respectively.

Appendix

PORT.	NAMES OF DOCKS, PONTOONS, PATENT SLIPS, &c.	DRY & FLOATING DOCKS. Extreme Length. — Length on Bottom.	Breadth at Entrance.	Height of Sill above Bottom of Dock.	Depth on Sill at High Water, ordinary Spring Tides.	PONTOONS. PATENT SLIPS. GRIDIRONS, &c. Extreme Length.	Length of Cradle.	Draft on Keel Blocks at High Water, ordinary Spring Tides. Forward.	Aft.	Lifting Power.	Difference between H.W. at ordinary Springs and at ordinary Neaps.	PROPRIETORS.	OTHER PARTICULARS.
SWEDEN—*continued.*		*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*Tons.*	*ft. in.*		
Varberg	Nil	...	...	...	...	...	...	...	...	...	...		
Västerås (Mälaren Lake)	Västerås Slip.....	...	...	...	...	510· 0	197· 0	5· 0	15· 0	700	...	**Västerås Skeppsvarfs Intressenter. (Manager, Gustaf Barckman. Address:—Köping)**	Sheers, 30 tons. (Out of Commission, Nov., 1939.)
Västervik	Electric Patent Slip	...	...	...	...	479· 0	165· 0	10· 0	18· 0	600	...	**Västerviks Nya Varvsaktiebolag.** (*In liq.*)	Accommodation for heaving down vessels and effecting repairs.
Viken	Vikens Skeppsvarv	...	...	...	...	301· 0	105· 0	6· 6	8· 6	150	No tides.	**Vikens Skeppsvarv Andersson & Witting**	Can take vessels 105 feet in length. Hand Crane, 5 tons.
Ystad	Ystad Patent Slip	...	...	...	...	450· 0	135· 0	6· 6	11· 1	350	...	**Ystad Harbour Commissioners**	

APPENDIX XXV

Commercial Aviation Facilities

A. Civil Aerodromes Listed in Alphabetical Order

Eskilstuna - Municipal Customs Airport - 2.49 miles W.N.W. of Eskilstuna.

Eslöv - State-owned Civil Emergency Aerodrome - 1.24 miles E. of Eslöv.

Fagerhult - State-owned Civil Emergency Aerodrome - 7.45 miles S.W. of Markaryd.

Feringe - State-owned Civil Emergency Aerodrome - 8.07 miles N. of Ljungby.

Göteborg - Torslanda - Municipal customs Airport - 6.83 miles W. of Göteborg.

Hagshult - State-owned Civil Emergency Aerodrome - 9.32 miles N.E. of Värnamo.

Halmstad - State-owned Aerodrome - .43 miles S.W. of Halmstad's Centrum.

Hästholmen - State-owned Civil Emergency Aerodrome- 1.24 miles S. of Hästholmen.

Jönköping - Municipal Customs Airport - 1.24 miles S.E. of Jönköping.

Linköping-Tannefors - Private Aerodrome - 1.55 miles S.E. of Linköping.

Malmö-Bulltofta - State-owned Civil Customs Airport - 1.86 miles E. of Malmö.

Norrköping - Municipal Customs Airport - 1.86 miles E. of Norrköping.

Örebro - Municipal Aerodrome - 1.24 miles S. of Örebro.

Stigtomta - State-owned Civil Emergency Airport - 8.07 miles W.N.W. of Nyköping.

Stockholm-Bromma - Municipal Customs Airport - 4.97 miles W.N.W. of Stockholm.

Strömstad-Näsinge - State-owned Civil Emergency Aerodrome - 8.07 miles N.E. of Strömstad.

Svarteborg - State-owned Civil Emergency Aerodrome - 20.50 miles N.W. of Uddevalla.

Varberg - Municipal Aerodrome - 1.24 miles N.W. of Varberg.

Visingsö - State-owned Civil Emergency Aerodrome on the northern point of Visingsö.

Vangsö - State-owned Civil Emergency Aerodrome - 4.97 miles N.W. of Gnesta

B. Detailed List of Facilities at the Major Airports, 1936.

Feringe

Civil Auxiliary Aerodrome - altitude 516 feet.

16.15 miles N. of Ljungby.

Description: 1,640 x 1,640 feet. Boundary marks, aero-beacon, boundary lights, obstruction lights and wind-T.

Göteborg-Torslanda

Civil customs aerodrome and seaplane station - altitude 10 feet.

Landplane landing ground N-S - 2,625 feet, E.W. - 1,969 feet; seaplane landing place 4,921 feet in all directions.

Boundary marks, wind-sock.

Hangars, one. Dimensions: 196.85 x 91.86 feet. Gate 98.42 x 18.04 feet.

Small repair shop in hangar.

Weather reports daily.

Lighting and radio service.

Fuel and oil stocks.

Jönköping

Civil customs aerodrome - altitude 300 feet.

Dimensions: E-W. - 2,133 feet, N-S - 1,640 feet.

Boundary marks - wind T north of the grounds.

Hangars: One (in course of construction, 1936)

Dimensions: 111.54 x 59.05. Gate - 67.25 x 16.40 feet.

Small repair shop in hangar.

Aero-beacon, boundary lights, obstruction lights and wind-T.

Small fuel and oil stocks.

Malmö-Bulltofta

Civil customs aerodrome - altitude 10 feet.

Dimensions: N-S - 2,625 feet, NE-SW - 3,281 feet, E.W. - 3,281 feet. SE-NW - 3,281 feet.

Wind-T and wind socks.

Hangars: Two. (1)-Dimensions: 137.79 x 144.35 feet. Gate: 104.98 x 16.40 feet. (2)-Dimensions: 328.08 x 98.42 feet. Gate: 164.04 x 26 feet.

All kinds of repairs.

Weather reports daily.

Radio service and lighting.

Fuel and oils. Tank car.

Norrköping

Civil customs aerodrome - altitude 10 feet.

Dimensions: E-W - 2,461 feet, N-S - 1,969 feet.

Boundary marks, wind-T and wind-sock.

Hangars: One. Dimensions: 68.89 x 49.21 feet. Gate: 65.61 x 13.44 feet.

Minor repairs can be made.

Usual lights and markers.

Small stock of fuel and oils.

Stigtomta

Civil Auxiliary Aerodrome - Altitude 83 feet.

Dimensions: 2,133 x 1,804 feet.

Boundary marks.

Boundary and obstruction lights and wind-T.

Stockholm-Bromma

Civil customs aerodrome - altitude 27 feet.

Dimensions: N-S - 3,937 feet, NE-SW - 2,953 feet, E-W - 2,625 feet, SE-NW - 2,953 feet.

4 runways - Length: 2,625-3,281 feet, Breadth: 131 feet.

Boundary marks, wind-T.

Hangars: One. Dimensions: 347.76 x 98 feet.
Gates: 164.04 x 26.24 feet.

Repairs: All kinds; ground engineers belonging to airlines.

Weather reports daily.

Radio service.

Lighting: Aerodrome beacon, flood-lights, boundary lights, approach lights, landing direction lights, obstruction lights and wind-T.

Fuel and oils - Tank car.

Stockholm-Lindarängen

Civil customs seaplane station.

Dimensions: N-S - 2,625 feet, E-W - 3,281 feet, SE-NW - 4,921 feet.

Wind-sock.

Hangars: One. Dimensions: 164.04 x 143.85 feet.
Gate: 139.9 x 39.37 feet.

Small workshop.

Weather reports daily.

Radio service.

Fuel and oil stocks.

Svarteborg

Civil auxiliary aerodrome - altitude 200 feet.

Dimensions: 1,969 x 1,804 feet.

Boundary markers.

C. Lighting Equipment on the Main Stockholm-Malmö Line, 1936

Stockholm-Norrköping-Jönköping-Malmö (339 miles)

This line has been equipped with 25 electric air-beacons of oscillating type developing about 1,900,000 Hefner Candle Power showing a white 3-flash every 1/5 second in the direction of the air line, and outside the same a white 1-flash every 1/5 second. There are nine auxiliary aerodromes with beacons, and two municipal aerodromes with lighting equipment at Norrköping and Jönköping.

D. Seaplane Stations

Göteborg-Torslanda - Municipal Customs Seaplane Station - 6.83 miles W. of Göteborg.

Kalmar-Ångö - Municipal Customs Seaplane Station in the harbour of Kalmar.

Stockholm-Lindarängen - Municipal Customs Seaplane Station - 2.17 miles E. of Stockholm.

Customs Seaplane Stations with no facilities: Hälsingborg, Karlshamn, Landskrona, Ronneby and Strömstad.

SVERIGE
SWEDEN

ÖVERSIKTSKARTA FÖR LUFTFARTEN
GENERAL MAP FOR AVIATION

SÖDRA DELEN
SOUTH PART

Utgiven av
KUNGL. VÄG OCH VATTENBYGGNADSSTYRELSEN
LUFTFARTSMYNDIGHET

Published by
THE ROYAL BOARD OF ROADS AND WATERWAYS
CIVIL AVIATION AUTHORITY

Rättad t.o.m. den 1 juni 1938
(Corrected to the 1st of June 1938)

TECKENFÖRKLARING
CONVENTIONAL SIGNS

- Hjälpflygplats eller militär övningsflygplats — Emergency aerodrome or military landing ground
- Landflygplats, kl. IV-II — Aerodrome, small
- Landflygplats, kl. I — Aerodrome, large
- Sjöflygplats — Seaplane Station
- Landflygplats, kl. IV-II med belysning av mindre omfattning — Aerodrome, small, with lighting
- Landflygplats, kl. I, med fullständig belysning — Aerodrome, large, with complete lighting
- Flygfyr — Aerial Beacon
- Radiostation (masthöjd över havet i m.) — Radioelectric station (height of masts above sea level in m)
- Radiopejlstation för luftfart — Aeronautical D/F Stn
- Landflygplats kl. I, med fullständig belysning, markradiostation och radiopejlstation — Aerodrome, large, with complete lighting, W/T Communication Stn. and D/F Stn
- Skjutfält eller bombfällningsplats — Shooting or Bombing Range
- För luftfart förbjudet område — Prohibited area
- Tullflygplats — Customs aerodrome — STOCKHOLM-BROMMA
- Militär flygplats betecknas med M invid flygplatsnamnet — Air Force Aerodrome marked by an M near name of aerodrome

Strecked symbol angiver anläggning under byggnad
Signs of short dashes indicates aerodrome under construction

0 50 100 km

LUFTFARTSLEDEN
AIRWAY
STOCKHOLM-MALMÖ

FLYGFYRAR
AERIAL BEACONS

1 Södertälje	14 Leråsen
2 Gnesta	15 Hagshult
3 Lid	16 Värnamo
4 Stigtomta	17 Feringe
5 Älberga	18 Åsen
6 Krokek	19 Beteråsen
7 Norrköping	20 Markaryd
8 Norsholm	21 Gökatorpet
9 Gerstorp	22 Perstorp
10 Högby	23 Gellaberg
11 Hästholmen	24 Trollenäs
12 Visingsö	25 Lund
13 Jönköping	

Mohed
Gävle
Rommehed
Mariehamn
Norrtälje
Västerås-Hässlö
Stockholm-Hagernas
Barkarby
Bromma
Lindarängen
Botkyrka Radiofyr
Stockholms Radio
Eskilstuna
Örebro
Vängsö
Härstjärden
Näsinge
Strömstad
Svarteborg
Stigtomta
Karlsborg
Karlsborg Radio
Motala Rundradio
Norrköping
Hästholmen
Malmen
Backamo
Visingsö
Färösund
Tingstäde
Visborgsslätt
Göteborg-Torslanda
Göteborg Radio
Jönköping
Skillingaryd
Skillingaryds skjutfält
Hagshult
Varberg Radio
Varberg
Feringe
Halmstad
Exen
Kalmar-Ängö
Fagerhult
Ronneby
Karlskrona
Helsingborg
Ljungbyhed
Karlshamn
Landskrona
Rinkaby
Eslöv
Hörby Rundradio
Danmark
København-Kastrup
Malmö-Bulltofta
Malmö-Industrihamnen

Appendix XXVII

Radio Facilities for Aerial Navigation

A. Radio Stations for Aircraft

(Radio service for aviation is in charge of the Radio Department of the Royal Telegraph Office)

Station	Call Signal	Frequency (length) Kc/s (m)		Stations Geographical Position	Antenna Effect Kw
		For Sending	For Receiving		
Göteborg-Torslanda	SED	336(893) 1) 283.5(1058) 3) 268(1119) 4)	333(900) 1) 268(1119) 4)	11° 46' 50" E 57° 42' 13" N	1
Jönköping	SEJ	338 (888) 1) 336 (893) 2)	333 (900) 1)	14° 10' 30" E 57° 46' 04" N	2
Malmö-Bulltofta	SEA	342 (877) 1) 336 (893) 2) 283.5 (1058) 3) 268 (1119) 4)	333 (900) 1) 268 (1119) 4)	13° 00' 20" E 55° 34' 54" N	1
	SEN	322 (932) 5)	322 (932) 5)	13° 02' 30" E 55° 35' 54" N	.02
Norrköping	SEG	342 (877) 1) 336 (893) 2) 268 (1119) 4)	333 (900) 1) 268 (1119)	16° 14' 24" E 58° 35' 20" N	.2
Stockholm-Bromma	SEF	340 (882) 1) 336 (893) 2) 283.5 (1058) 3) 268 (1119) 4)	333 (900) 1) 268 (1119)	17° 54' 35" E 59° 23' 17" N	1
	SEL	322 (932) 5)	322 (932) 5)	17° 57' 48" E 59° 31' 30" N	.01

Underlined figures indicate normal sending frequency

1) For connection with the airplane
2) For calling the airplane
3) For sending out weather reports
4) For connection with the airport radio
5) For traffic nearby

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B. Maritime Direction Finding Stations

Station	Location	Call letters	Frequency (Length) Kc/s (m)			Sectors in which bearings are normally accurate.
			For calling DF station	For transmitting to the DF station the signals necessary for taking bearings.	For the transmission of the bearings by the DF station.	
Göteborg-Torslanda	a) 11°47'06"E 57°42'48"N b) 11°46'50"E 57°42'11"N	SED	333 (900)	333 (900) 327 (917) 322 (932)	336 (893)	0° - 360°
Jönköping	14°10'30"E 57°46'04"N	SEJ	333 (900)	333 (900) 327 (917) 322 (932)	336 (893) 338 (888)	0° - 360°
Malmö-Bulltofta	a) 13°03'18"E 55°36'06"N b) 13°00'20"E 55°34'55"N	SEA	333 (900)	333 (900) 327 (917)	336 (893) 342 (877)	0° - 360°
	a) 13°03'18"E 55°36'06"N b) 13°02'30"E 55°35'54"N	SAN	322 (932)	322 (932)	322 (932)	0° - 360°
Norrköping	a) 16°14'10"E 58°35'23"N b) 16°14'24"E 58°35'20"N	SEG	333 (900)	333 (900) 327 (917) 322 (932)	336 (893) 342 (877)	0° - 360°
Stockholm-Bromma	a) 17°57'00"E 59°21'20"N b) 17°54'35"E 59°23'17"N	SEF	333 (900)	333 (900) 327 (917)	336 (893) 340 (882)	0° - 360°
	a) 17°57'00"E 59°21'20"N b) 17°57'48"E 59°31'30"N	SEL	322 (932)	322 (932)	322 (932)	0° - 360°

a) The receiving aerial of the DF station. b) The transmitting aerial.

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C. Radio Beacon Station

Name	Location	Radio Beacon Characteristic Signal	Radio Beacon call signal, when there is one.	Wave Length Kc/s (m)	Type	Modulation frequency, when there is one. c/s	Normal Range	Name and call signal of the station to which the message can be sent for transmission over the radio beacon station.	Wave-length frequency (wave-length) Kc/s (m)	Sector in which bearings are nominally accurate
Stava Aeroplane RC[2]	18°26'36"E 57°33'18"N	SEK-SEK, pause 47 seconds, SEK - and so on. (period of 92 seconds)	SEK	361 (831)	A1	—	62.13 miles	Stockholm - Bromma Aeradio SEF	333 (900)	0°-360°

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APPENDIX XXVIII

A. Exports from Sweden, 1939

Product	Short Tons	
Animals and products	102,899	
Meat - not including pork	17,100	
Hogs	4,062	
Fish	39,946	
Butter	28,850	
Eggs	6,024	
Wheat	10,132	
Wheat meal	1,570	
Cement	37,133	
Iron ore	15,047,095	
Matches	23,024	
Wood, cork, products thereof	3,426,534	
Paper, pulp and products thereof	3,606	
Iron and steel and products thereof	466,504	
Locomotives and tenders	1,600	
Diesel Motors	2,405	
Steam turbines, water turbines, and water wheels	1,453	
Agricultural machines	12,254	
Automobiles	1,750(units)	
Generators, motors, transformers, armatures	10,739	
Telephone and telegraph apparatus	855	
War Weapons	1,594	
Ammunition	2,648	
Total Exports for 1939	24,034,360	$453,272,222

B. Imports to Sweden, 1939

Product	Short Tons	
Potatoes	6,633	
Oranges	48,679	
Bananas	11,973	
Coffee	61,982	
Maize	46,704	
Wheat	43,134	
Bran	28,519	(108,280, in 1938)
Soybeans	137,011	
Vegetable oils	50,082	
Sugar	7,491	
Cocoa	10,771	
Fish	1,871	
Oil cake	196,895	
Coal, coke, and briquettes	9,611,480	
Mineral oil (benzine etc.)	1,639,824	
Textiles and products thereof	160,051	
Tractors	8,120	
Special Electro-technical apparatus	2,958	
Automobiles	28,251	units
Auto chassis	2,472	"
Divers parts for the construction of automobiles	23,997	
Weapons	835	
Ammunition	1,048	
Total imports for 1939	16,902,112	$599,684,437

Appendix XXIX

Commercial Broadcasting Stations, 1940.

Monopoly Stations	Make	Call	Kcs.	Wave Length meters	Antenna Power Kw.	Modulus degree
Motala	Marconi	SBG	216	1,388.9	150	80
Luleå	Telefunken	SBS	392	765.3	10	80
Östersund	"	SBF	415.5	722	10	80
Sundsvall	Standard Elec.	SBD	601	499.2	10	80
Stockholm	Marconi	SBA	704	426.1	55	80
Göteborg	Standard Elec.	SBB	941	318.8	10	80
Falun	Telefunken	--	1,086	276.2	2.0	40
Hörby	"	SBH	1,131	265.3	60	80
Malmö	Standard Elec.	SBC	1,312	228.7	2.5	80
Norrköping		SBI	1,312	228.7	.25	80
Trollhättan		SBJ	1,312	228.7	.25	80
Karlstad		SBK	1,312	228.7	.25	80
Umeå		SBL	1,402	214	1.	80
Hudiksvall		SBM	1,402	214	1.	80
Örnsköldsvik		SBN	1,402	214	.5	80
Hälsingborg		SBQ	1,402	214	.5	80
Karlskrona		SBR	1,530	196.1	.5	80
Short Wave (all monopoly stations):						
Motala	Aga-Baltic	SBO	6,065	49.46	12	80
Motala	" "	SBU	9,535	31.46	12	80
Motala	" "	SBP	11,705	25.63	12	80
Motala	" "	SBT	15,155	19.80	10	80
Club Stations						
Malmberget		SCN	704	426.1	.2	40
Eskilstuna		SCC	1,240	241.9	.2	40
Säffle		SCP	1,240	241.9	.4	40
Varberg	Marconi	SCU	1,240	241.9	.2	40
Örebro		SCV	1.240	241.9	.2	40

Monopoly Stations	Make	Call	Kcs.	Wave Length meters	Antenna Power Kw.	Modulus degree
Club Stations						
Kiruna		SCL	1,258	238.5	.2	40
Uddevalla		SCR	1,411	212.6	.05	40
Borås		SCA	1,447	207.3	.2	40
Kalmar		SCI	1,447	207.3	.2	40
Gävle		SCD	1,483	202.3	.2	40
Halmstad		SCE	1,492	201.1	.2	40
Uppsala		SCT	1,492	201.1	.2	40
Kristinehamn		SCM	1,500	200.	.2	40
Jönköping		SCH	1,515	198.	.2	40

Stations broadcast according to the following schedule:

Week days, except Saturdays	(7:45-8:10 A.M. (Noon-3:00 P.M. (5:00-11:00 P.M.
Saturdays	(7:45-8:10 A.M. (Noon-1:00 P.M. (3:00-11:00 P.M.
Sundays	(9:00 A.M.-1:00 P.M. (3:00 P.M.-11:00 P.M.

(785)

RADIO STATIONS

Station	Designation	Location	Wave: Frequency (kc/s)	Wave: Length (m)	Type of Emission (Ao, A1, A2, A3, A4, A5, & B)	Antenna Power (kW)	Antenna Power: Modulation rate (%)	Antenna Directive	Maximum Modulation Frequency (kc/s for A2, A3, A4, & A5.)	Normal maximum transmission speed (bauds)*	Nature of Service	Administration or Operating Company
Karlsborg	SAV	14 28 44 E 58 29 18 N	50	6000	A1	10	-	-	-	24	FX France	Genl. Dir. of Telegraph. System-Stockholm
Karlsborg	SAV	14 28 44 E 58 29 18 N	50	6000	A1	10	-	-	-	16	Meteorological Serv.	" " "
Karlsborg	SAJ	14 28 44 E 58 29 18 N	70.3	4267	A1	10	-	-	-	24	FX France	" " "
Karlsborg	SAW	14 28 44 E 59 29 18 N	87.2	3440	A1	10	-	-	-	24	FX	" " "
Karlsborg	SAR	14 28 44 E 58 29 18 N	99.2	3024	A1	1	-	-	-	20	FX Estonia, Latvia	" " "
Karlsborg	SAS	14 28 44 E 58 29 18 N	5714	52.50	A2	0.5	-	-	2	-	FX Estonia, Latvia.	" " "
Karlsborg	SAP	14 28 44 E 58 29 18 N	6977	43.00	A1	0.8	-	-	-	100	FX Europe	" " "
Karlsborg	SDY	14 28 44 E 58 29 18 N	8967.5	33.45	A1	0.8	-	-	-	100	FX CP Interior	" " "
Karlsborg	SAU	14 28 44 E 58 29 18 N	9434	31.80	A2	0.5	-	-	2	-	FX	" " "
Karlsborg	SDV	14 28 44 E 58 29 18 N	12202.5	24.59	A1	0.8	-	-	-	100	FX Europe	" " "
Motala	SDX	15 02 40 E 58 32 50 N	9442.5	31.77	A1	12	-	-	-	100	FX USA, Europe	" " "
Motala	SDB	15 02 40 E 58 32 50 N	10780	27.83	A1	12	-	-	-	100	FX USA, Netherlands.	" " "
Motala	SDQ	15 02 40 E 58 32 50 N	15645	19.18	A1	10	-	-	-	100	FX USA	" " "
Varberg	SAQ	12 24 19 E 57 06 48 N	17.2;	17440	A1	200	-	-	-	24	FX USA	" " "
Varberg	SDA	12 24 19 E 57 06 48 N	7435	40.35	A1	0,6	-	-	-	100	FX USA, Europe	" " "

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Varberg	SAT	12 24 19 E 57 06 48 N	8940	33.56	A1	-	-	-	-	-	FX	Genl. Dir. Telegraph System Stockholm
Varberg	SDM	12 24 19 E 57 06 48 N	12028	24.94	A1	0.8	-	-	-	100	FX USA, Europe	" " "
Varberg	SDE	12 24 19 E 57 06 48 N	13815	21.72	A1	0.8	-	-	-	100	FX USA	" " "
Varberg	SDO	12 24 19 E 57 06 48 N	13825	21.70	A1	40	-	-	-	100	FX USA, Europe	" " "
Varberg	SDT	12 24 19 E 57 06 48 N	15665	19.15	A1	40	-	-	-	-	FX USA, Europe	" " "
Varberg	SDC	12 24 19 E 57 06 48 N	15685	19.13	A1	0.8	-	-	-	100	FX USA	" " "
Varberg	SAY	12 24 19 E 57 06 48 N	18160	16.52	A1	0.8	-	-	-	100	FX USA	" " "
Varberg	SDI	12 24 19 E 57 06 48 N	18175	16.51	A1	40	-	-	-	100	FX USA, Europe	" " "
Varberg	SDU	12 24 19 E 57 06 48 N	18185	16.50	A1	40	-	-	-	100	FX USA, Europe	" " "
Varberg	SAZ	12 24 19 E 57 06 48 N	19400	15.46	A1	-	-	-	-	-	FX	" " "

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APPENDIX

TABLE OF CENTRAL OPERATING TELEGRAPH STATIONS, 1940

ALPHABETICALLY ARRANGED. NUMBERS INDICATE ORDER OF IMPORTANCE BASED ON OPERATING INCOME.

Alingsås	67	Hudiksvall	43	Ljusdal	82	Sollefteå	58	Visby	28
Arboga	104	Hultsfred	64	Ludvika	51	Stockholm (tfn	1	Vänersborg	34
Arvidsjaur	117	Hälsingborg	5	Luleå	32	Stockholm (tgf	1	Värnamo	77
Arvika	39	Härnösand	38	Lund	19	Strängnäs	92	Västervik	61
Askersund	122	Hässleholm	26	Lycksele	83	Strömstad	101	Västerås	17
Boden	35	Höganäs	88	Lysekil	72	Strömsund	114	Växjö	21
Bollnäs	70	Hörby	98	Malmö	3	Sundsvall	10	Ystad	25
Borgholm	118	Jönköping	12	Mariefred	128	Sunne	90	Åmål	107
Borås	8	Kalix	68	Mariestad	71	Sveg	115	Ånge	123
Eksjö	85	Kalmar	20	Mjölby	80	Säffle	87	Ängelholm	50
Enköping	65	Karlshamn	47	Mora	31	Söderhamn	57	Örebro	6
Eskilstuna	23	Karlskoga	45	Motala	56	Söderköping	121	Örnsköldsvik	36
Eslöv	53	Karlskrona	24	Mönsterås	126	Södertälje	46	Östersund	14
Falkenberg	78	Karlstad	15	Nora	116	Sölvesborg	96	Östhammar	119
Falköping	73	Katrineholm	49	Norberg	89	Tidaholm	124		
Falun	16	Kiruna	94	Nordmaling	111	Tranås	86		
Filipstad	33	Klippan	62	Norrköping	7	Trelleborg	41		
Finspång	106	Kolbäck	105	Norrtälje	42	Trollhättan	48		
Flen	91	Kopparberg	125	Nyköping	40	Uddevalla	37		
Gamleby	110	Kramfors	66	Nässjö	54	Ulricehamn	93		
Gnesta	95	Kristianstad	18	Oskarshamn	69	Umeå	22		
Grebbestad	112	Kristinehamn	52	Oxelösund	127	Uppsala	9		
Gällivare	97	Krylbo	79	Piteå	75	Vadstena	109		
Gävle	4	Köping	84	Ronneby	103	Valdemarsvik	120		
Göteborg (tfn	2	Landskrona	30	Sala	44	Vara	63		
Göteborg (tgf)	2	Leksand	113	Simrishamn	81	Varberg	55		
Halmstad	13	Lidköping	59	Skara	74	Varekil	108		
Haparanda	60	Lindesberg	100	Skellefteå	27	Vetlanda	99		
Hedemora	76	Linköping	11	Skövde	29	Vilhelmina	102		

There were, in addition to the above list, 1,772 railroad telegraph stations of which 969 belonged to the state-owned railroads and 803 to the private. Of the total number, 829 are available for international messages and 943 for Scandinavian.

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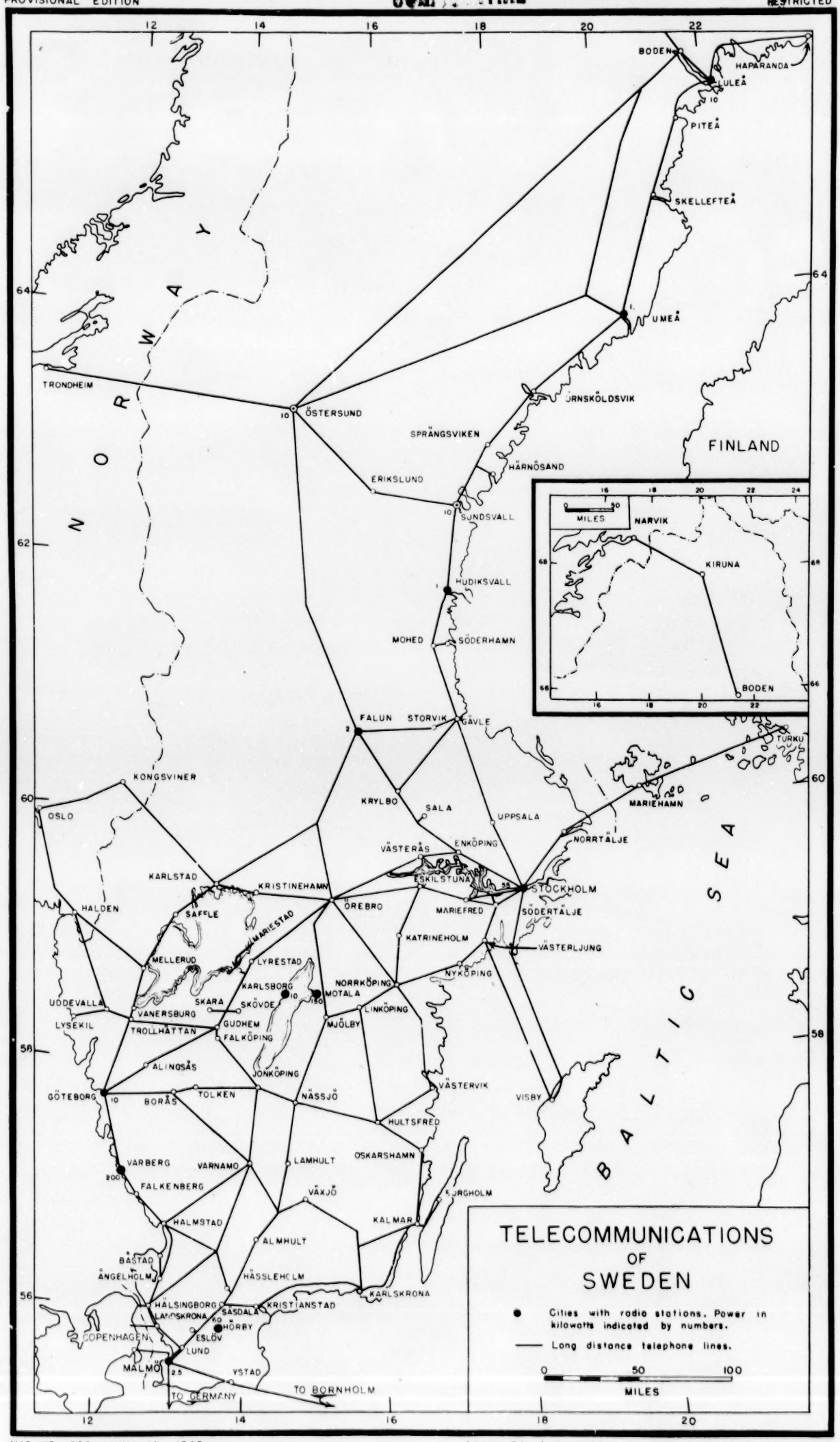
PROVISIONAL EDITION

RESTRICTED



MAP NO 702 JULY 14, 1942

COMPILED AND DRAWN IN THE GEOGRAPHY DIV., OSS

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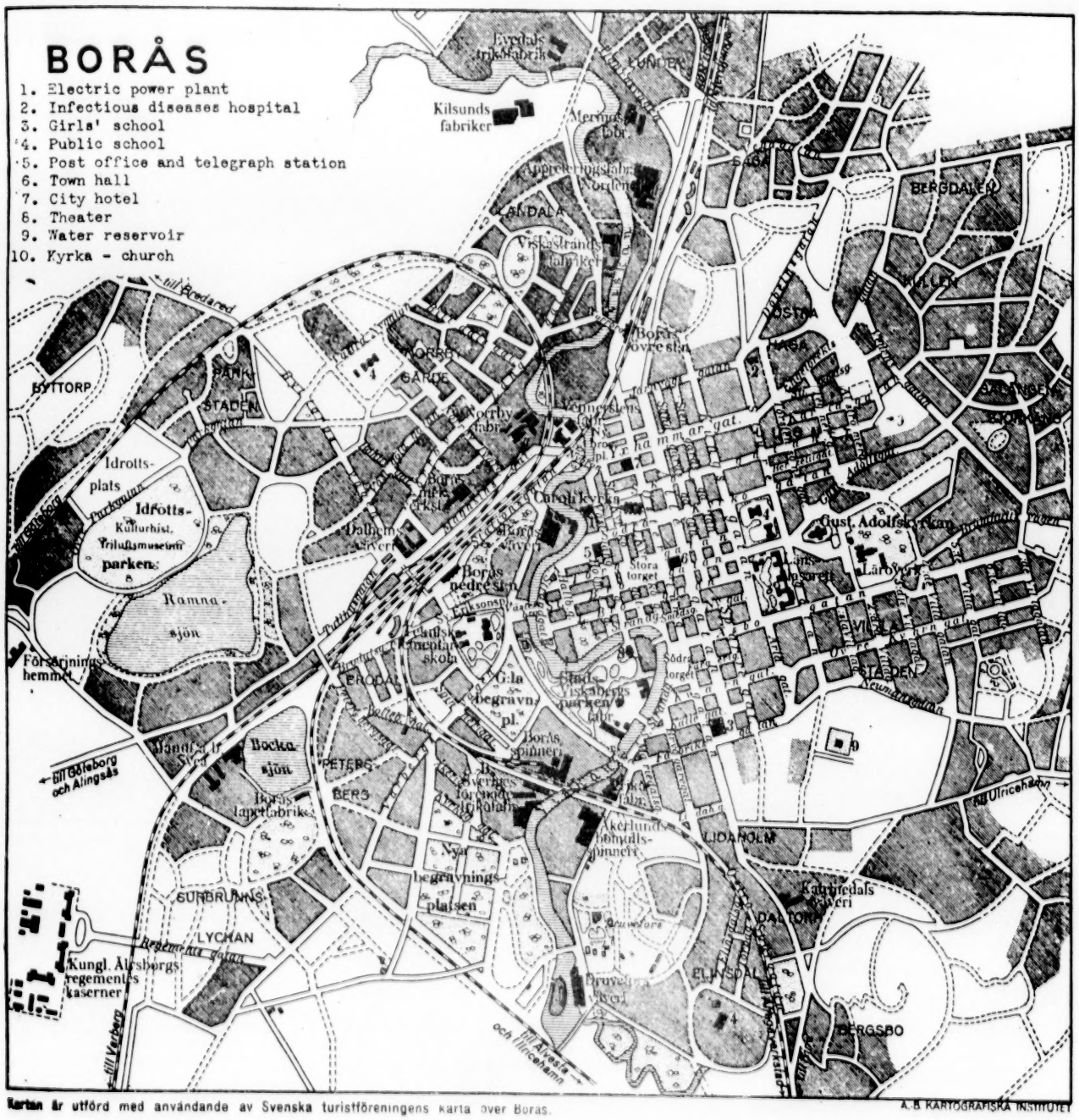

Kartan är utförd med användande av Svenska turistföreningens karta över Borås.

A.B. KARTOGRAFISKA INSTITUTET

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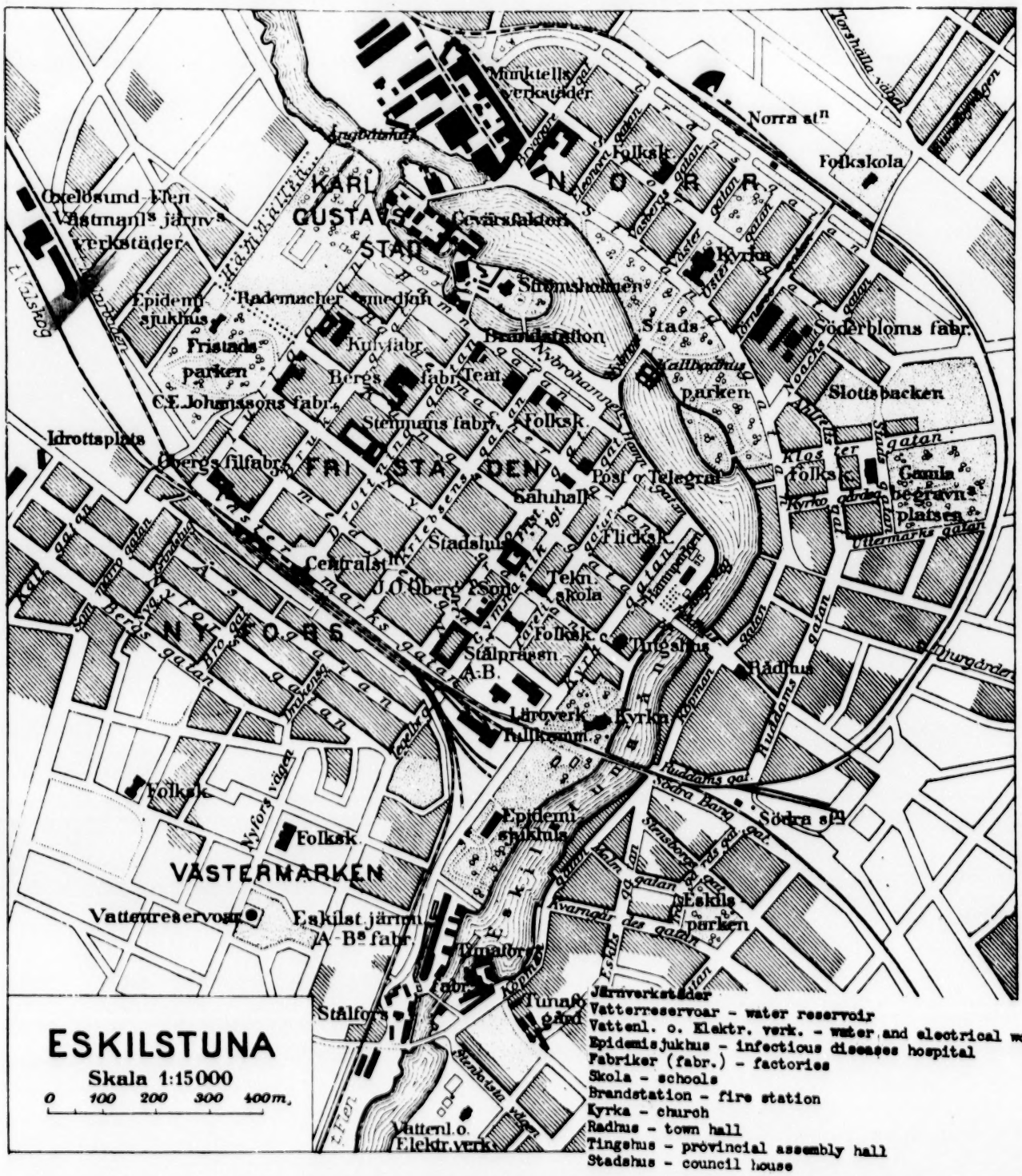
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NORRA
FRISTADEN
NYFORS
VÄSTERMARKEN
ESKILSTUNA
Skala 1:15000
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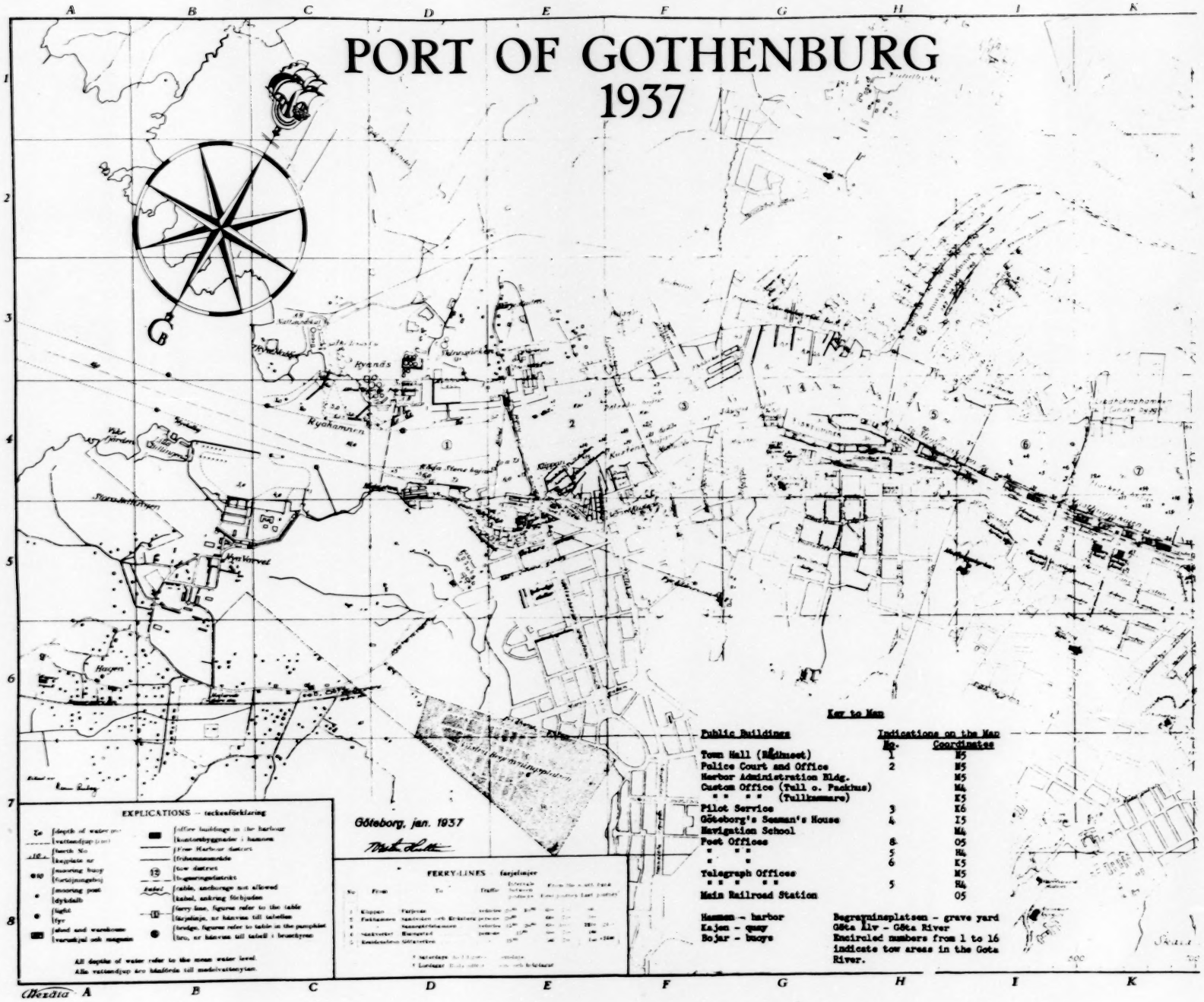
Munktells verkstäder
Norra st:n
Folksk.
Folkskola
Oxelösund-Flen Fastmanl:s järnv:s verkstäder
Gevärsfaktori
Kyrka
Strömsholmen
Epidemi-sjukhus
Rademacher smedjan
Stads-
Söderbloms fabr.
Bangården
Kullagatan
Fristads parken
Kulv.fabr.
Bergs fabr.
Tegl.
Hallstahus parken
Slottsbacken
C.E. Johnssons fabr.
Stenmans fabr.
Idrottsplats
Öbergs filfabr.
Post o Telegraf
Gamla begrafn:platsen
Klas Fougts gata
Saluhall
Stadshus
Flickskola
Centralst:n
O.O. Öberg & Sönr
Tekn. skola
Stålpressn. A:B.
Tingshus
Rådhus
Lärov.
Kyrka
Tullkamm.
Rudbecks gata
Södra Storg:n
Södra st:n
Folksk.
Epidemi-sjukhus
Vattenreservoir
Eskilst. järnm. A:B:s fabr.
Tunafors fabr.
Stålfors
Vattenl. o. Elektr. verk
Eskils parken
Järnverkstäder
Vatterreservoar - water reservoir
Vattenl. o. Elektr. verk. - water and electrical works
Epidemisjukhus - infectious diseases hospital
Fabriker (fabr.) - factories
Skola - schools
Brandstation - fire station
Kyrka - church
Radhus - town hall
Tingshus - provincial assembly hall
Stadshus - council house

PORT OF GOTHENBURG
1937



Key to Map

Public Buildings	Indications on the Map No.	Coordinates
Town Hall (Rådhuset)	1	H5
Police Court and Office	2	H5
Harbor Administration Bldg.		H5
Custom Office (Tull o. Packhus)		H4
" " " (Tullkammare)		K5
Pilot Service	3	K6
Göteborg's Seaman's House	4	I5
Navigation School		H4
Post Offices	8	O5
" "	5	H4
" "	6	K5
Telegraph Offices		H5
" " " "	5	H4
Main Railroad Station		O5

Hamnen - harbor
Kajen - quay
Bojar - buoys

Begravningsplatsen - grave yard
Göta Älv - Göta River
Encircled numbers from 1 to 16 indicate tow areas in the Gota River.

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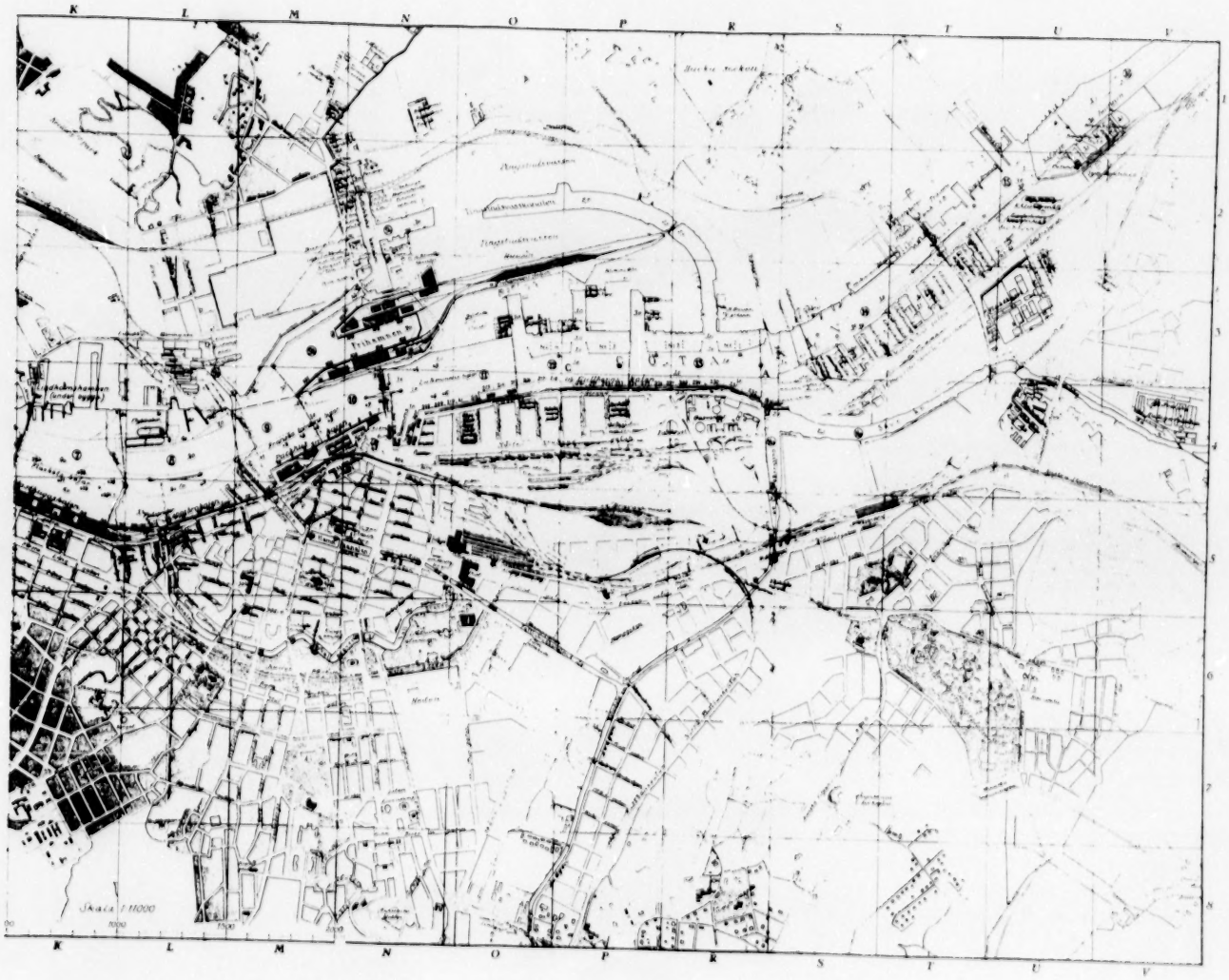
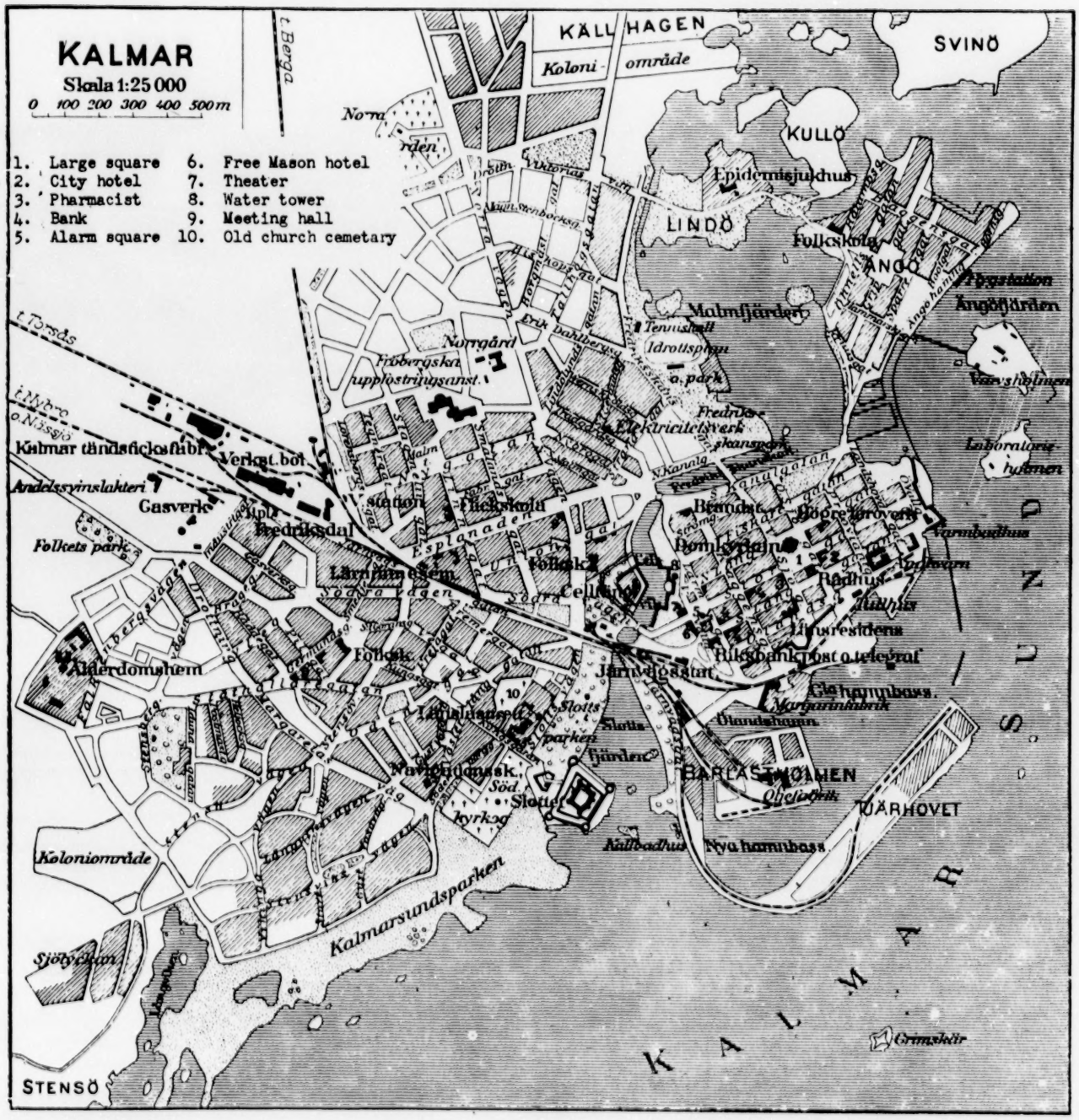

K L M N O P R S T U V
Skala 1:10000
K L M N O P R S T U V

PÅLSJÖ
Pålsjö skog
Epidemi-sjukhuset
Kungl. Skånska Kavalleriregementets Kaserner
Pålsjöbäcken
Rikstelegrafen
Göteborg
Hälsans Källbadhus
TÅGABORG
STATTENA
Hornulfs Park
Marga-retaplatsen
Systrarna Brodks stiftelse
Brygger
Fredriksdal
Skogspark
Hälsan
Öresunds Folkskola
parken
Idrottsplatsen
Olympia
Folkskola
Slotts-
Slottsbacken
Ångfärja
Hamnpaviljongen
Lotsfyr
Central hamnen
Inre hamn
Tullhus
Nya begr. plats
Gamla begr. pl.
Kapell
Krookalen
Centralstn plant.
S. hamnen
Förhamnen
Nya hamnen
Ångfärja
ÖRESUND
Petroleum upplag
Stads och rangerbangården
Folkskola
Sturzen-beckers park
Slakt-huset
Gasverket
WILSON PARK
Elektr. verk
Vattenverk
Fabr.
Bandfabr.
Norra hamnen
Kungsgatan
Drottningg.
Kyrkogatan
Kapellgatan
Prästgatan
Skolgatan
Tullgatan
Hamngatan
Järnvägsgatan
Fabriksgatan
Bangatan
Parkgatan
Trädgårdsgatan
Fredriksdalsgatan
Sjötullsgatan
Sturzenbeckers gata
Tullhusgatan
Kanalgatan
Kvarngatan
Kullagatan
Ågatan
Bergsgatan
Kullbadhus
Kallbadhus
Hälsans
Pålsjöbacken
Pålsjöbacken
Pålsjöbacken

KALMAR. 1


KALMAR
Skala 1:25 000
0 100 200 300 400 500 m
1. Large square
2. City hotel
3. Pharmacist
4. Bank
5. Alarm square
6. Free Mason hotel
7. Theater
8. Water tower
9. Meeting hall
10. Old church cemetary
KÄLLHAGEN
Koloni-område
SVINÖ
KULLÖ
LINDÖ
ÄNGÖ
Epidemisjukhus
Folkskola
Malmsjödalen
Tennishall
Idrottsplan
o. park
Ångöfjärden
Norrgård
Fröbergska uppfostringsanst.
Fredriksdal
Elektricitetsverk
skansparken
Laboratorie-hus
Kalmar tändsticksfabr.
Verkst. bod
Andelsmejeriet
Gasverk
station
Flickskola
Brandst.
Högre läroverk
Folkets park
Folksk.
Domkyrkan
Rådhus
Länsresidens
Riksbank
Post o. telegraf
Ålderdomshem
Järnvägsgatan
Slottsparken
Navigationsmask. Söd.
Slottet
BARLASTHOLMEN
KÄRHOVET
Kolonimråde
Kalmarsundsparken
Sjöfyrkan
Grimskär
STENSÖ
KALMAR SUND

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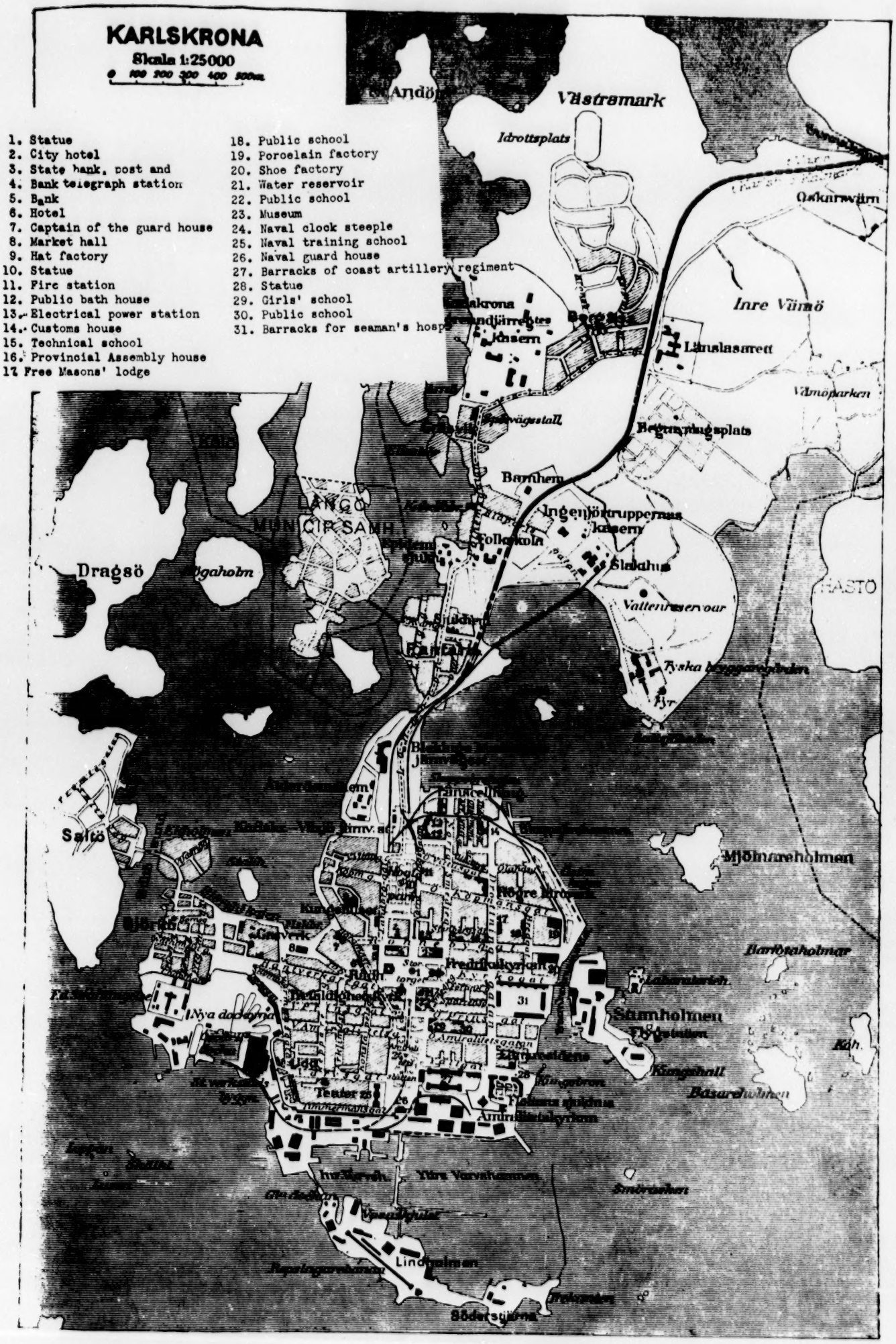
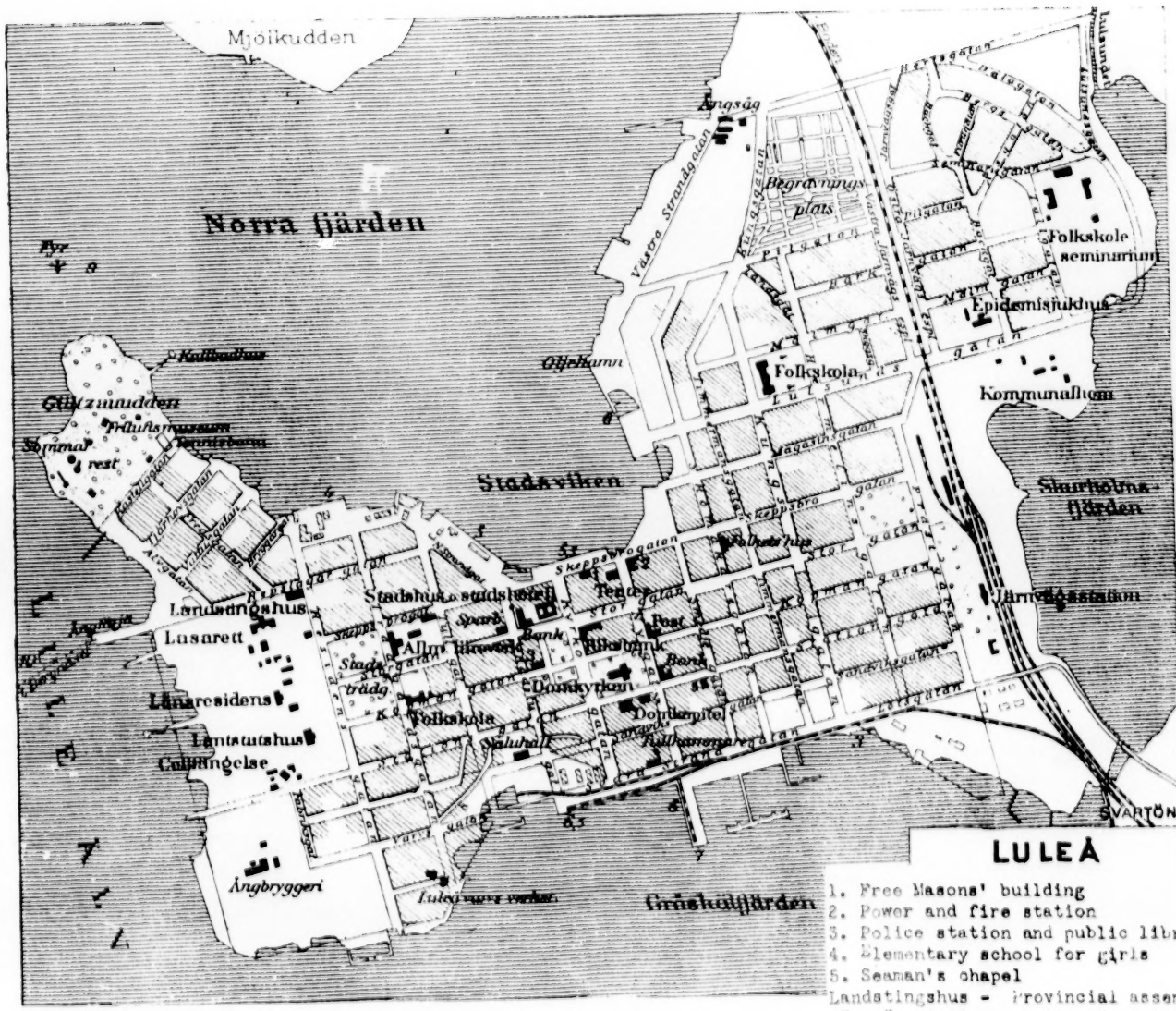
KARLSKRONA. 1



LULEÅ



LULEÅ

1. Free Masons' building
2. Power and fire station
3. Police station and public library
4. Elementary school for girls
5. Seaman's chapel

Landstingshus - Provincial assembly
Järnvägsstation - railroad station

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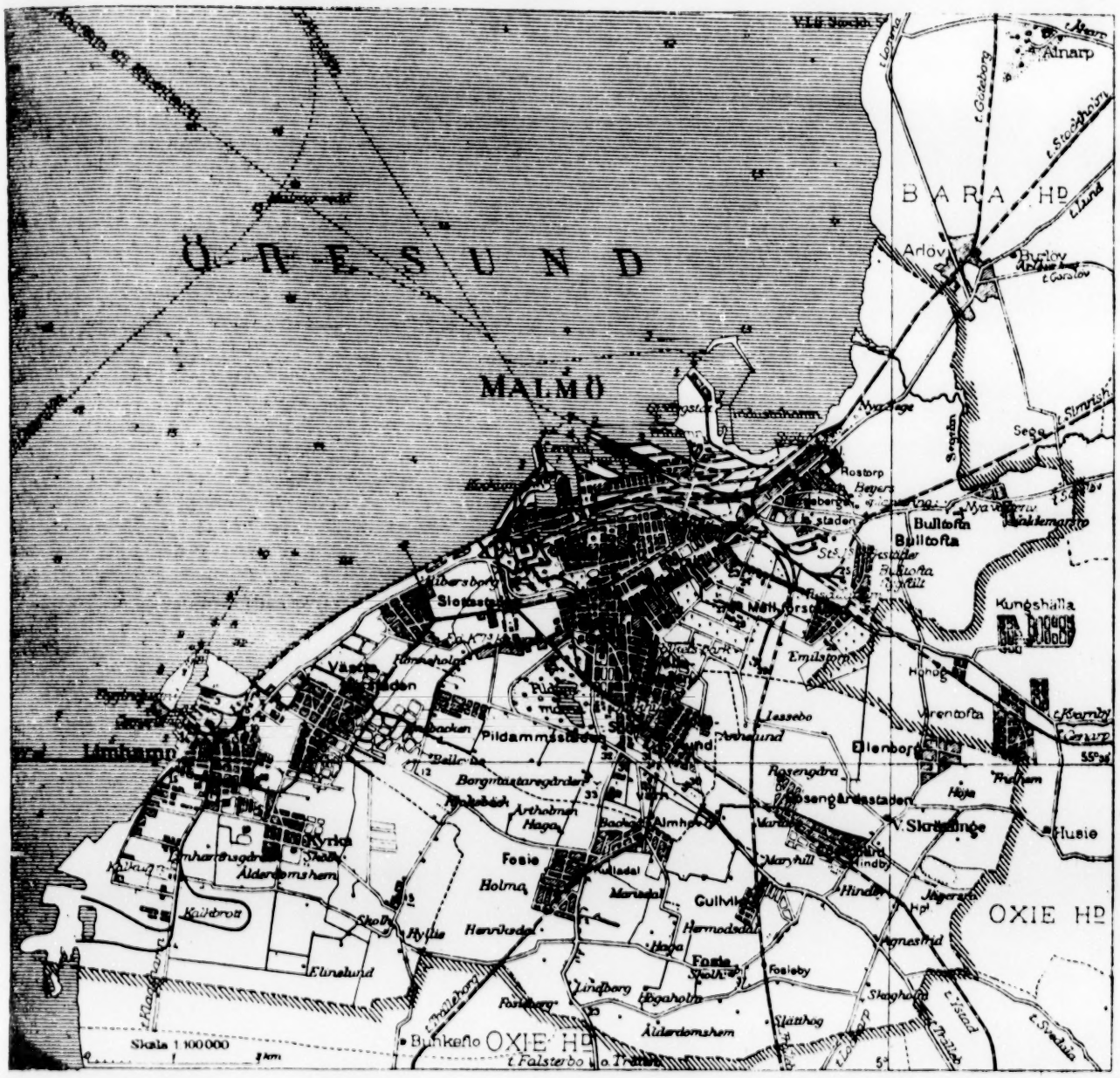
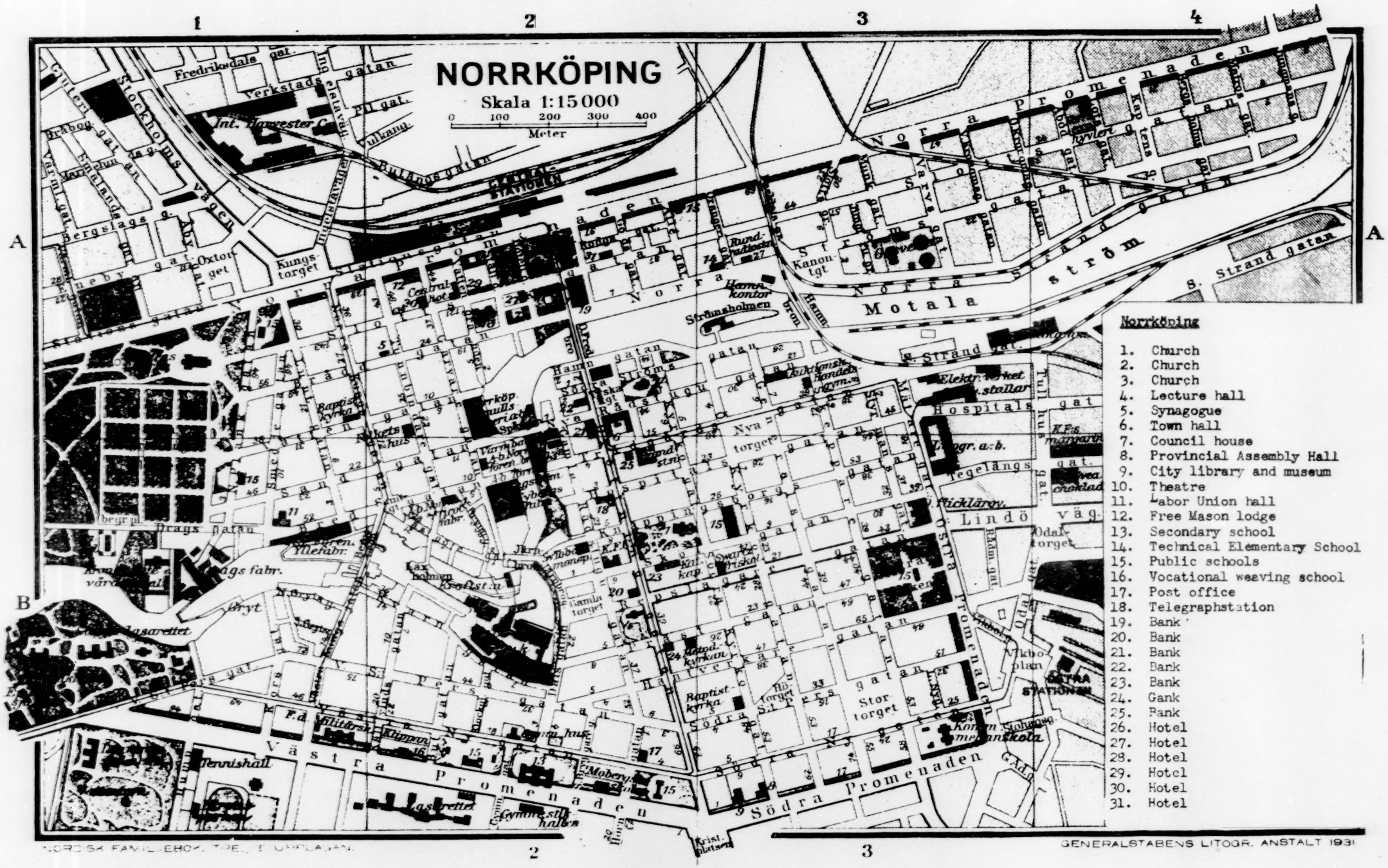


MAP OF MALMÖ AND VICINITY

1. Limhamns shipbuilding yard. 2. Petroleum tanks. 3. Art goods factory. 4. Carpentery factory. 5. Cement goods factory. 7. Oil works. 8. Fire station. 9. Carbonic acid factory. 10. Gas works. 11. Twine factory 12. Railroad station. 13. Harbor office. 14. Fish harbor. 15. Hotel. 16. Municipal building. 17. Wesley church. 18. School. 19. Sports center. 20.-- 21. County jail. 22. East guard house. 23. Margarine factory. 24. Workers' institution. 25. Railroad machine shops. 26. Institution for children. 27. Oil works. 28. Soap factory. 29. Street cleaning works. 30. Brewery. 32. Health institute for children. 33. Radio station. 34. Manufactures. 35. Leather goods factory.



NORDISK FAMILJEBOK, TRE, E UPPLAGAN.

GENERALSTABENS LITOGR. ANSTALT 1931

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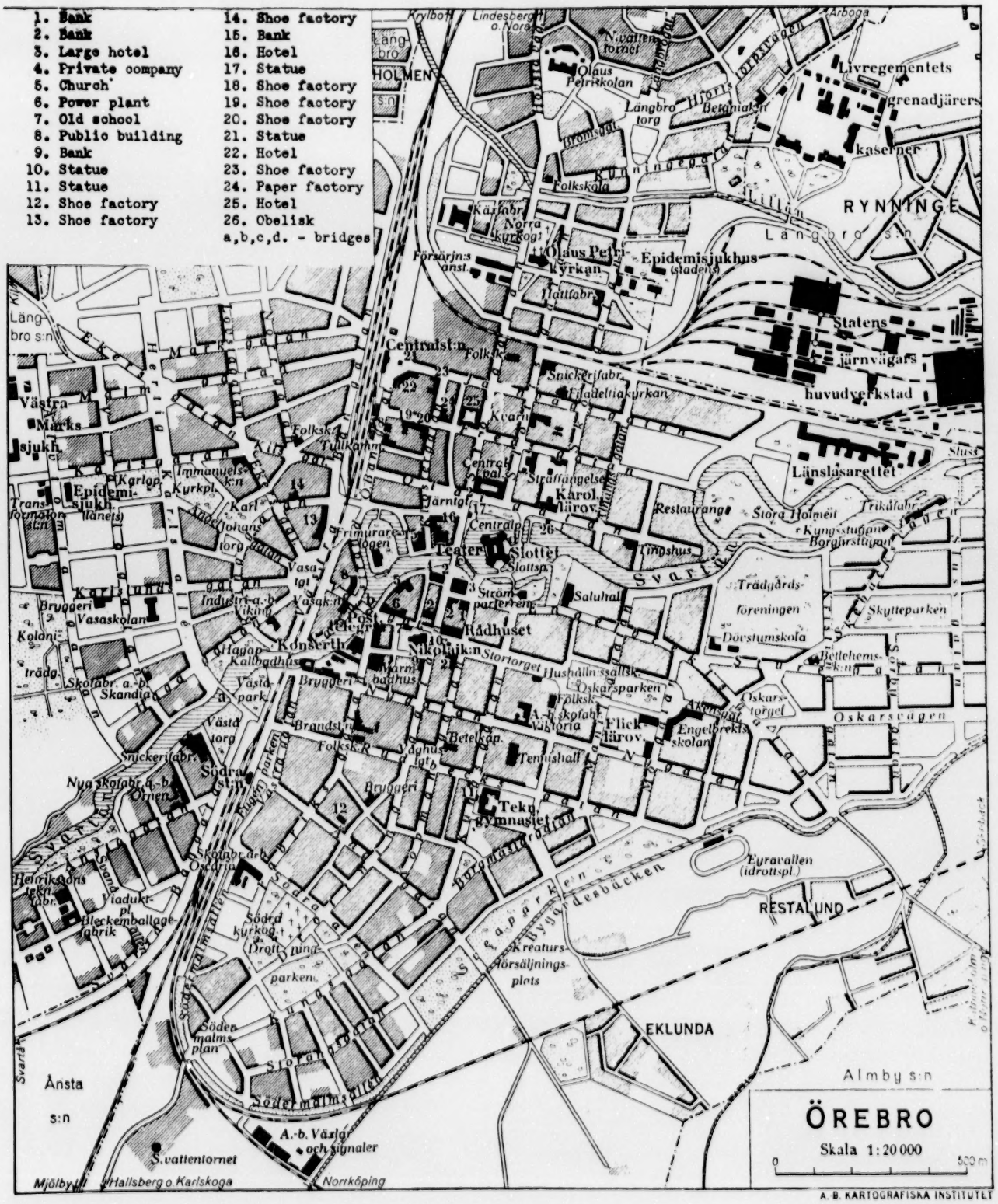
1. Bank
2. Bank
3. Large hotel
4. Private company
5. Church
6. Power plant
7. Old school
8. Public building
9. Bank
10. Statue
11. Statue
12. Shoe factory
13. Shoe factory
14. Shoe factory
15. Bank
16. Hotel
17. Statue
18. Shoe factory
19. Shoe factory
20. Shoe factory
21. Statue
22. Hotel
23. Shoe factory
24. Paper factory
25. Hotel
26. Obelisk

a,b,c,d. - bridges



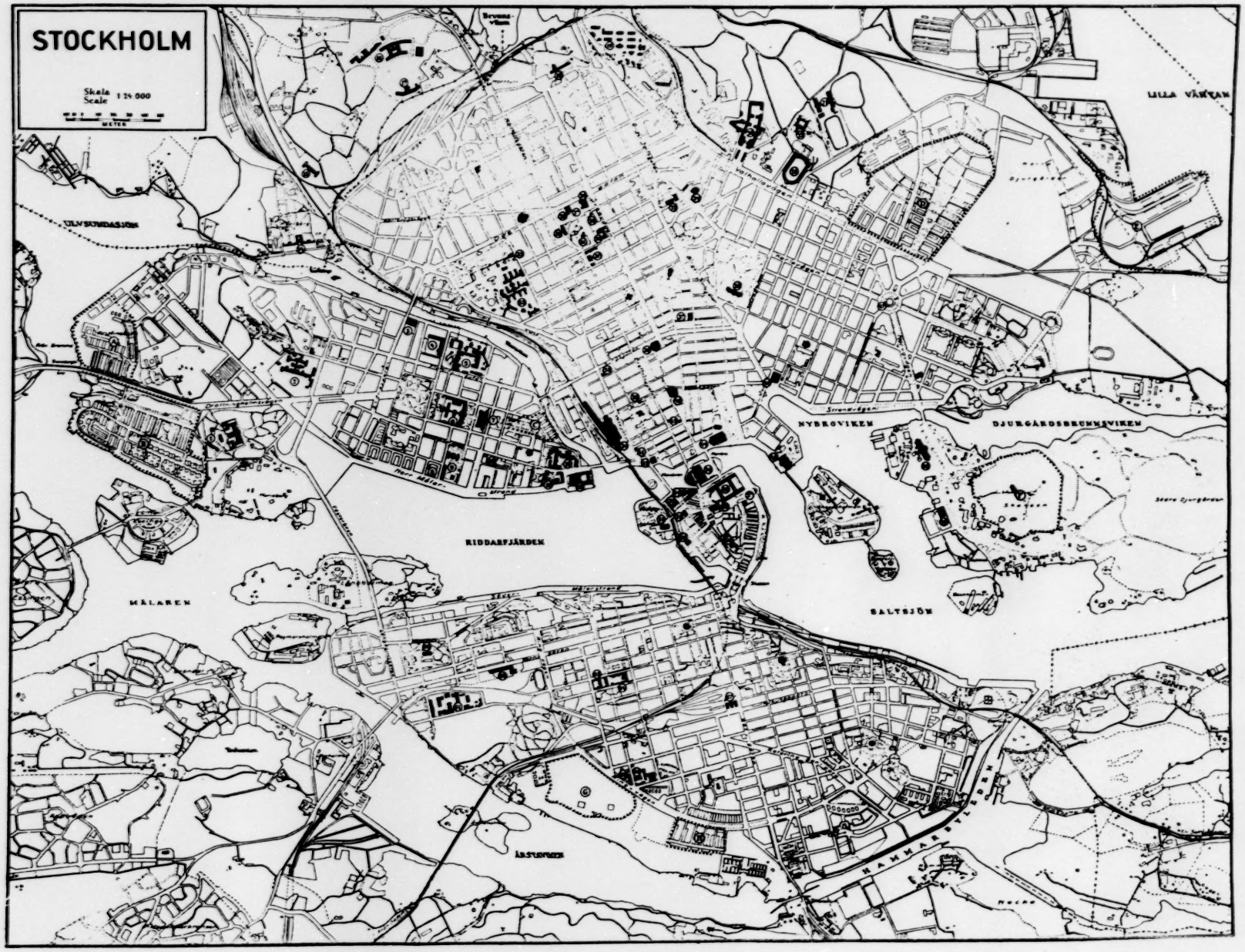
A. B. KARTOGRAFISKA INSTITUTET

INDEX TO THE MAP.

1. Psychiatric Hospital.
2. St. Göran Hospital.
3. The Sports Palace.
4. Stockholm Municipal Apprentice and Vocational Schools.
5. St. Erik Hospital.
6. Police Court.
7. Borough Law Courts.
8. "Kollektivhuset" (Service Flats).
9. Garrison Hospital.
10. Temperance Board.
11. Caroline Institute.
12. Serafimer Hospital.
13. Town Hall.
14. Military Academy, Karlberg.
15. Institute for the Blind, Tomteboda.
16. Caroline Hospital.
17. State Institute for Cripples.
18. Girls' Secondary School.
19. Epidemic Hospital.
20. University of Technology.
21. Tennis Stadium.
22. General Maternity Hospital.
23. Stadium.
24. Engelbrekt Church.
25. "Borgarskolan" (Evening school).
26. Town Library.
27. Social Institute.
28. Bio-chemical Institute.
29. Paddling Pond.
30. Commercial High School.
31. Stockholm University (different buildings).
32. Eastman Dental Clinic.
33. Sabbatsberg Hospital.
34. Central Station.
35. Sports and Recreations Board.
36. Concert Hall.
37. Employment Office.
38. Royal Library.
39. Child Welfare Board; Institute for Legal Assistance.
40. Central Gymnastic Institute.
41. Board of Health and Hospital Board.
42. "Stockholms-Systemet".
43. Elementary School Board.
44. Royal Theatre.
45. National Museum.
46. Dramatic Theatre.
47. Paddling Pond at Karlaplan.
48. Nordic Museum.
49. Liljevalch's Art Gallery.
50. The Riksdag and the Bank of Sweden.
51. Riddarholm Church.
52. House of Nobles.
53. Board of Guardians.
54. Government Offices.
55. Royal Palace.
56. Storkyrkan (Church).
57. Governor's Office and Municipal Census Office.
58. Stockholm Committee of Unemployment.
59. Elementary School of Storkyrkan Parish.
60. Högalid Church.
61. Högalid Invalid Home.
62. South Communal Intermediate School.
63. Southern Maternity Hospital.
64. Maria Hospital.
65. "Guldbrollophemmet" (Home for old married couples).
66. Rosenlund Home for Old People.
67. "Medborgarhuset" (a centre of voluntary education).

A. Kristineberg. Residential area
B. Fredhäll " "
C. Kungsklippan " "
D. Gärdet " "

E. The Free Port.
F. Skansen. The Open Air Museum.
G. Site reserved for the South Hospital.
H. Eriksdal. Residential area.



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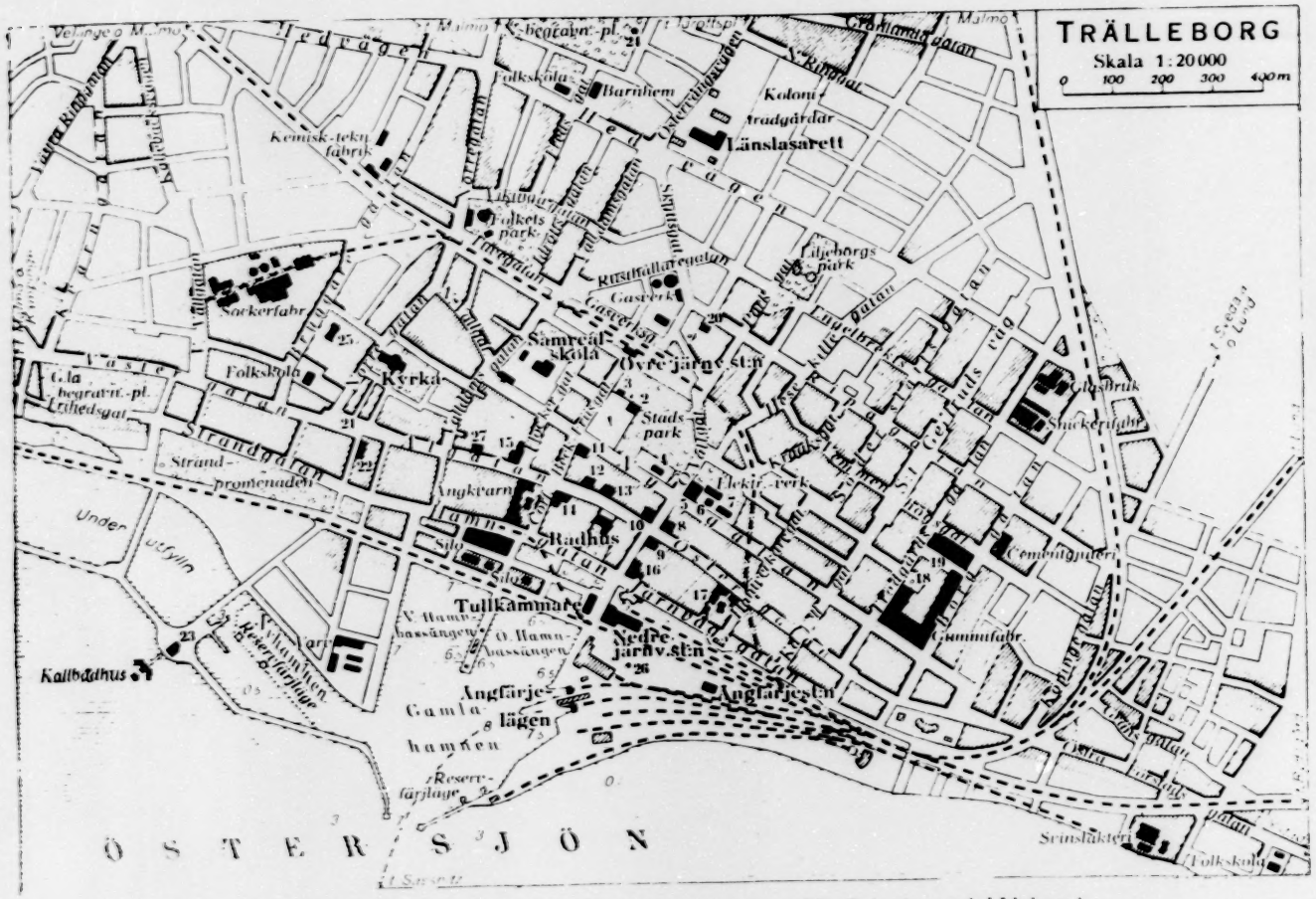
TRÄLLEBORG


TRÄLLEBORG
Skala 1:20000
0 100 200 300 400 m
Kyrkan
Rådhus
Tullkammaren
Länslasarett
Barnhem
Folkskola
Folkets park
Stadspark
Liljeborgs park
Gasverk
Sockerfabr.
Samreal-skola
Övre järnv.stn
Nedre järnv.stn
Ångkvarn
Strand-promenaden
Kallbadhus
Ångfärjeläget
Reservfärjeläge
Tullhamnen
Gamla hamnen
Ö S T E R S J Ö N
Kolonilotter
Trädgårdar
Kemisk-teknisk fabrik
Tekn. verk
Gummifabr.
Oljefabrik
Sockerfabrik
Skeppsbron
Stortorget
Lilla Torget
Kungsgatan
Drottninggatan
Prästgatan
Södergatan
Järnvägsgatan
Hamngatan
Tullhamnsgatan
Lilla Södergatan
Lilla Hamngatan
Lilla Tullhamnsgatan
Lilla Kungsgatan
Lilla Drottninggatan
Lilla Prästgatan
Lilla Järnvägsgatan
Lilla Strandgatan
Strandgatan
Lilla Strandvägen
Strandvägen
Lilla Tullhamnsvägen
Tullhamnsvägen
Lilla Hamnvägen
Hamnvägen
Lilla Södervägen
Södervägen
Lilla Järnvägsvägen
Järnvägsvägen
Lilla Kungsvägen
Kungsvägen
Lilla Drottningvägen
Drottningvägen
Lilla Prästvägen
Prästvägen
Lilla Skeppsbron
Skeppsbron
Lilla Torget
Torget
Lilla Stortorget
Stortorget
Lilla Kyrkogatan
Kyrkogatan
Lilla Kyrkogatan
Kyrkogatan
Lilla Kyrkogatan
Kyrkogatan